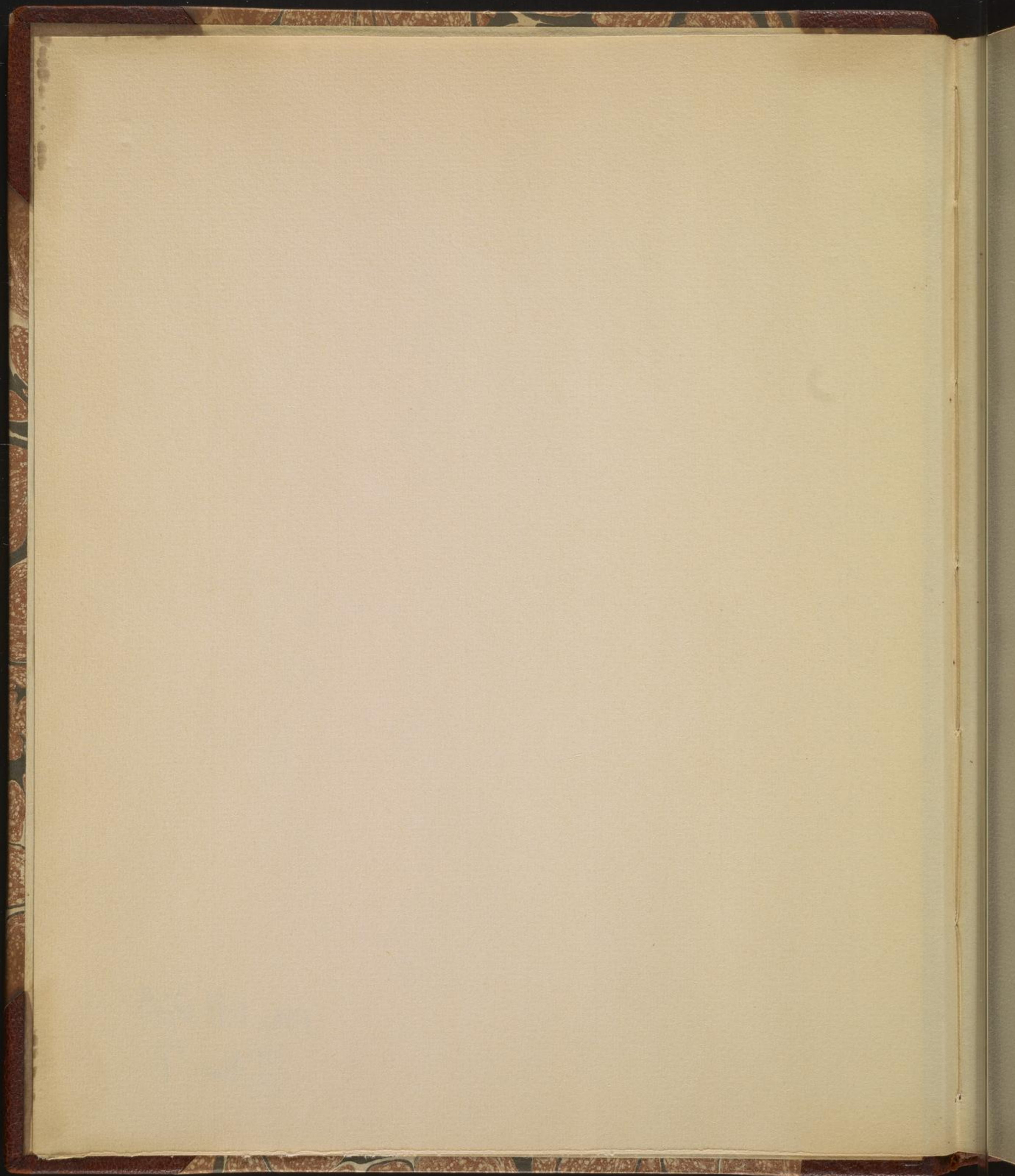
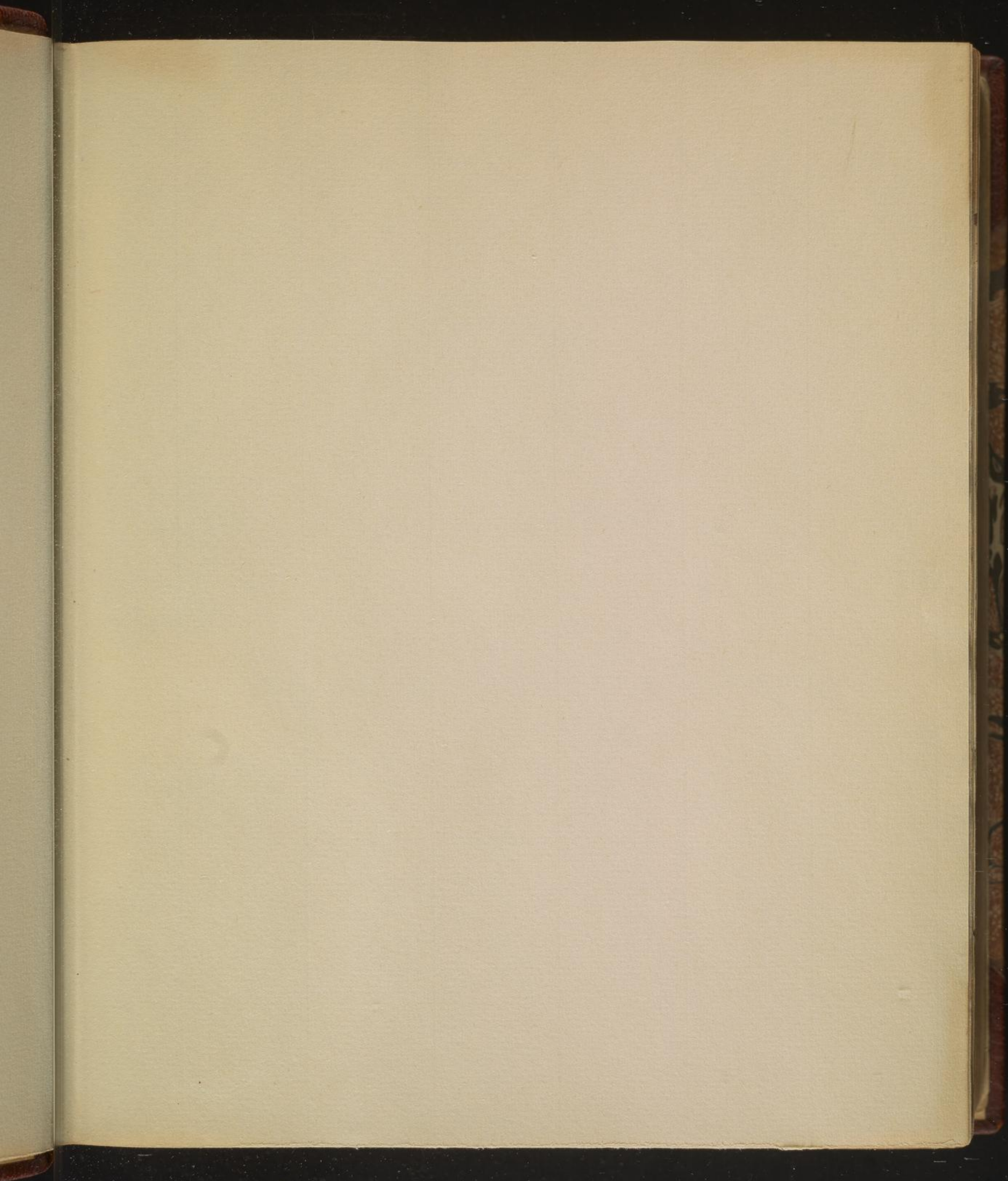
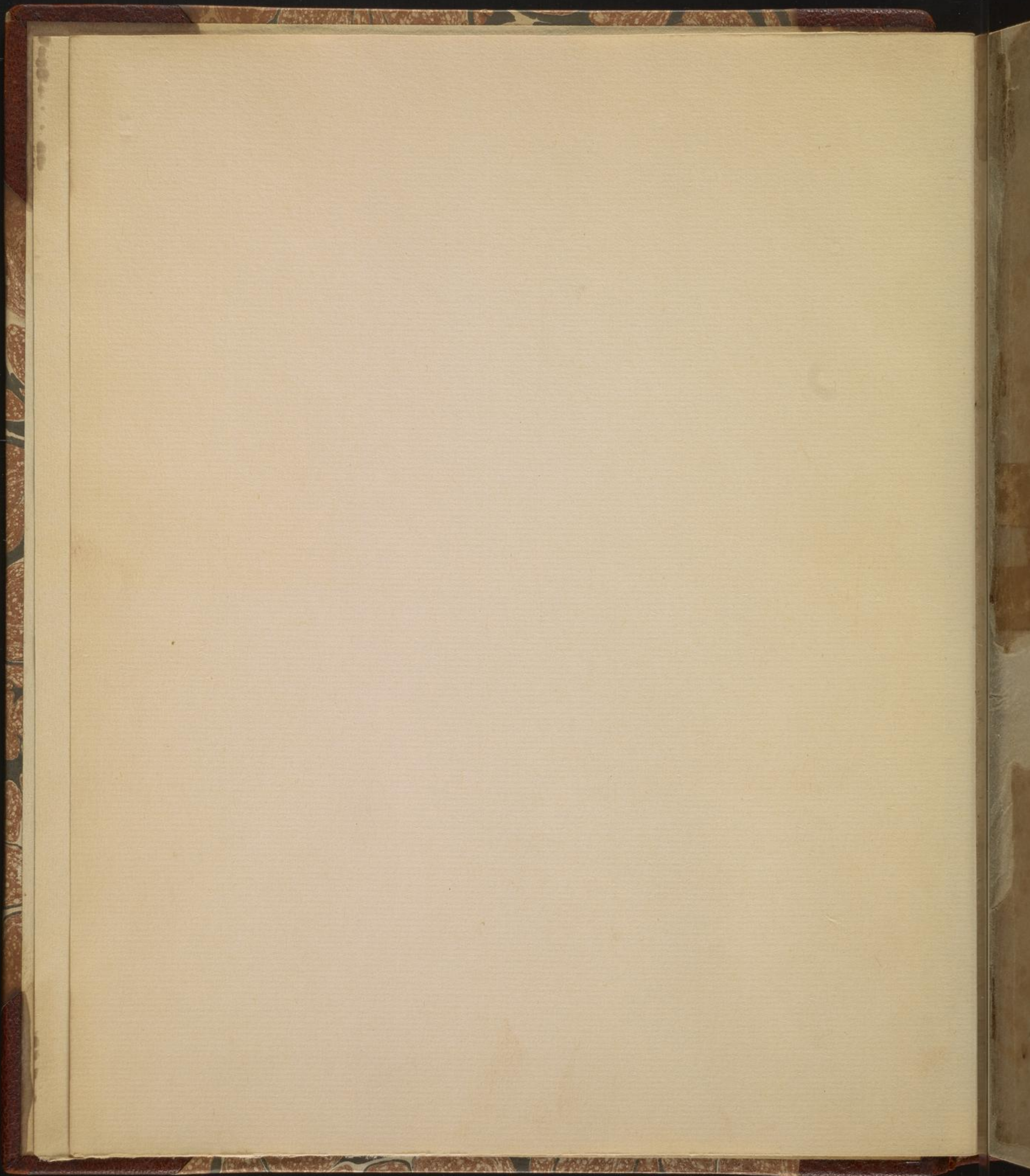


ms. coll 225
Item 7







Notes

14

from the

Lectures

of

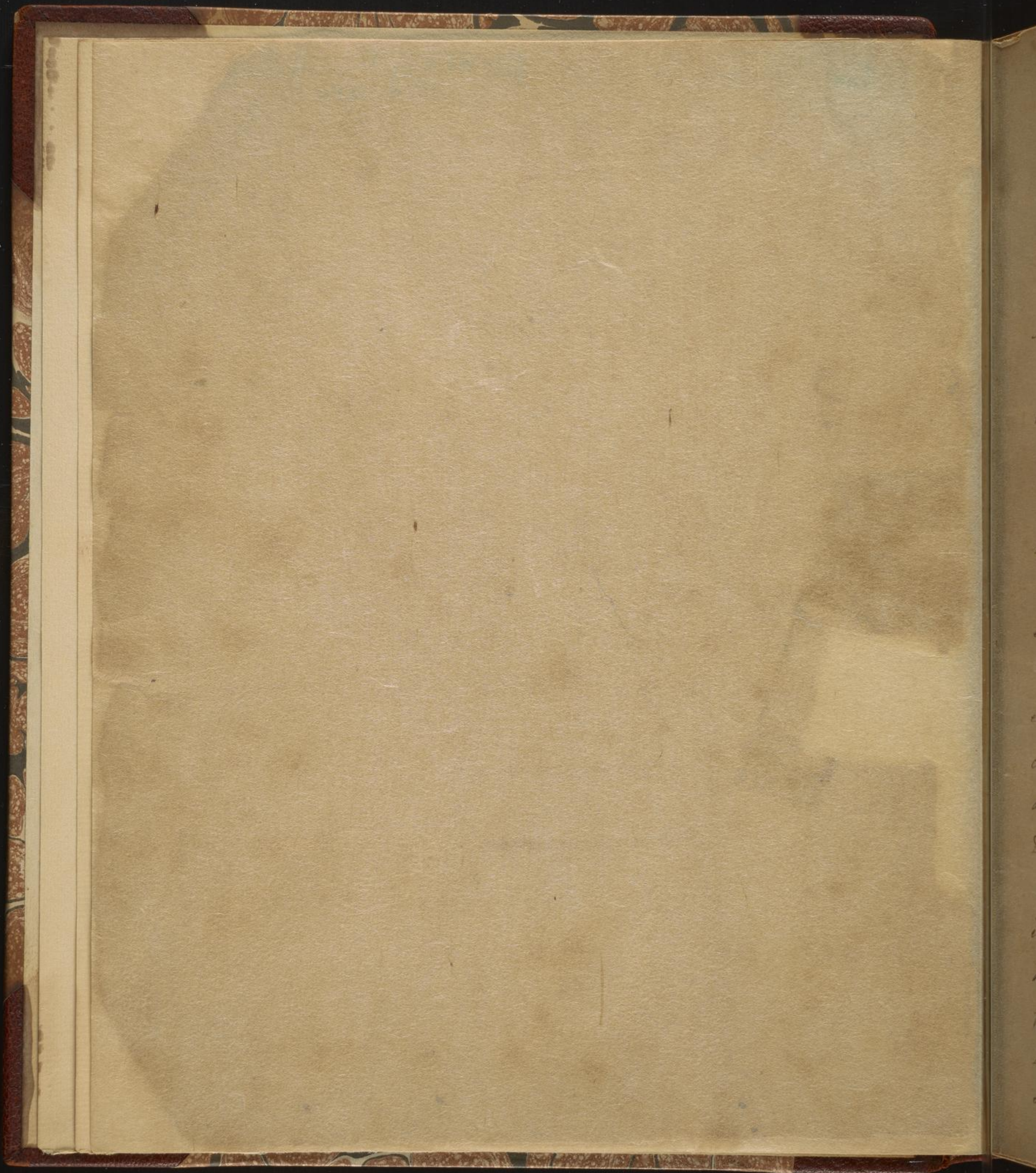
Benjamin Rush M.D.

Professor of the
Institutes & Practice of Medicine

Vol. 1

University of Pennsylvania

1809. 10.



h)

Notes &c

Gentlemen

My business in this University is to teach the Institutes & Practice of Medicine.

The Institutes are divided into four parts. Physiology, Hygiene, Pathology & Therapeutics.

Physiology includes the history of the human body in its healthy state. It should be studied in combination with Anatomy.

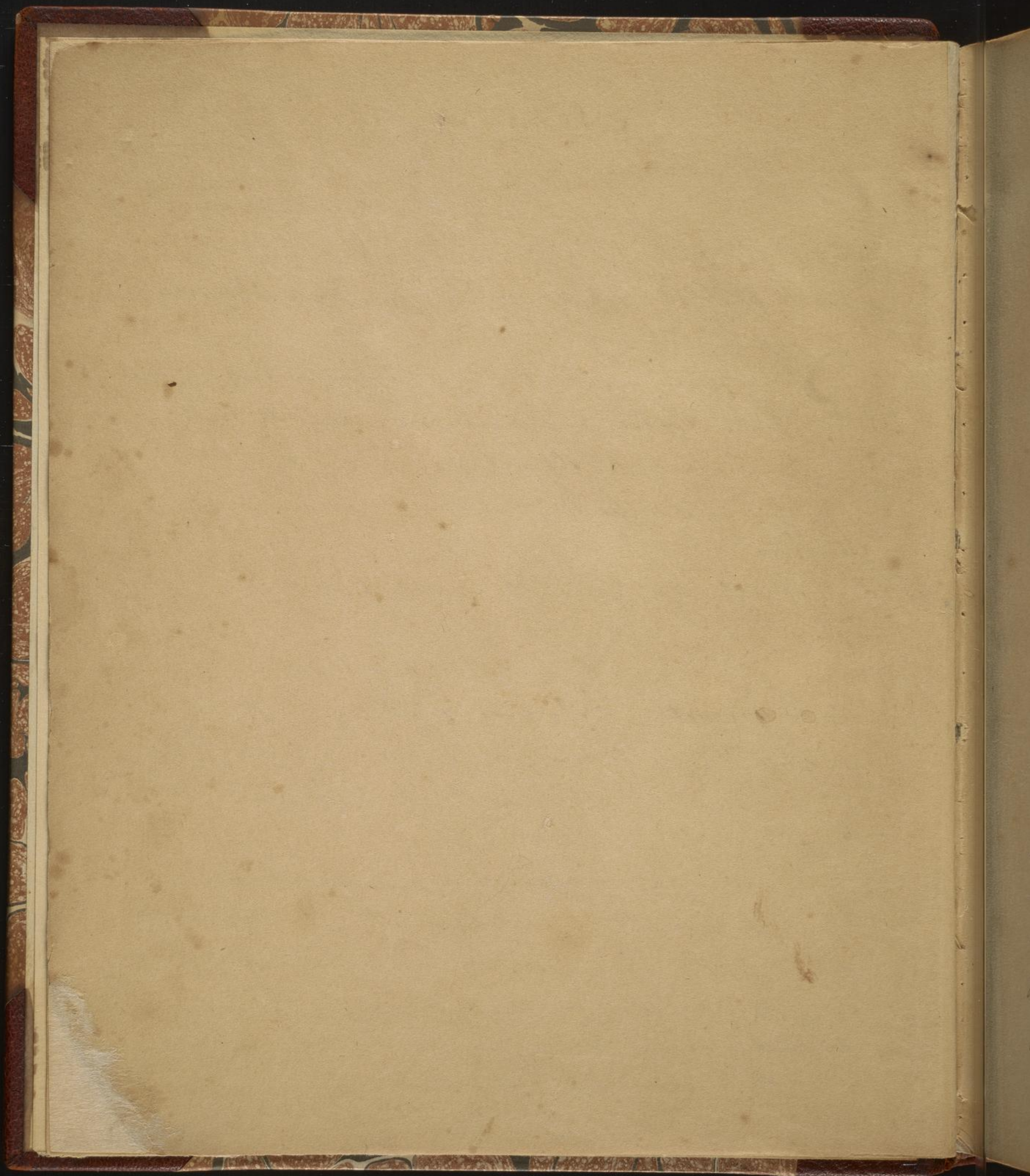
Hygiene includes the art of preserving health.

Pathology includes the history of the causes & seats of Diseases.

Therapeutics teaches the remedies for the cure of Diseases.

Medicine may be compared to a tripod, it is supported by Observation, Experience & Theory. It is very common to decry theory, but the mind of man is always active and consequently must think; the celebrated Doctor Darwin says "To think is to theorize".

There are some erroneous theories in the science of Medicine which should be guarded against. Dr Brown says debility is the cause of fever. Dr Boerhaave, that the tenuity of the blood or what we now call vice is the cause of fever. Dr Cullen says it depends on a spasm of the extreme vessels. These opinions are all false, a morbid & preternatural



tural action of the bloodvessels is the cause of fever.

Medicine becomes a science only when combined with facts.

Many Patients die of curable diseases.

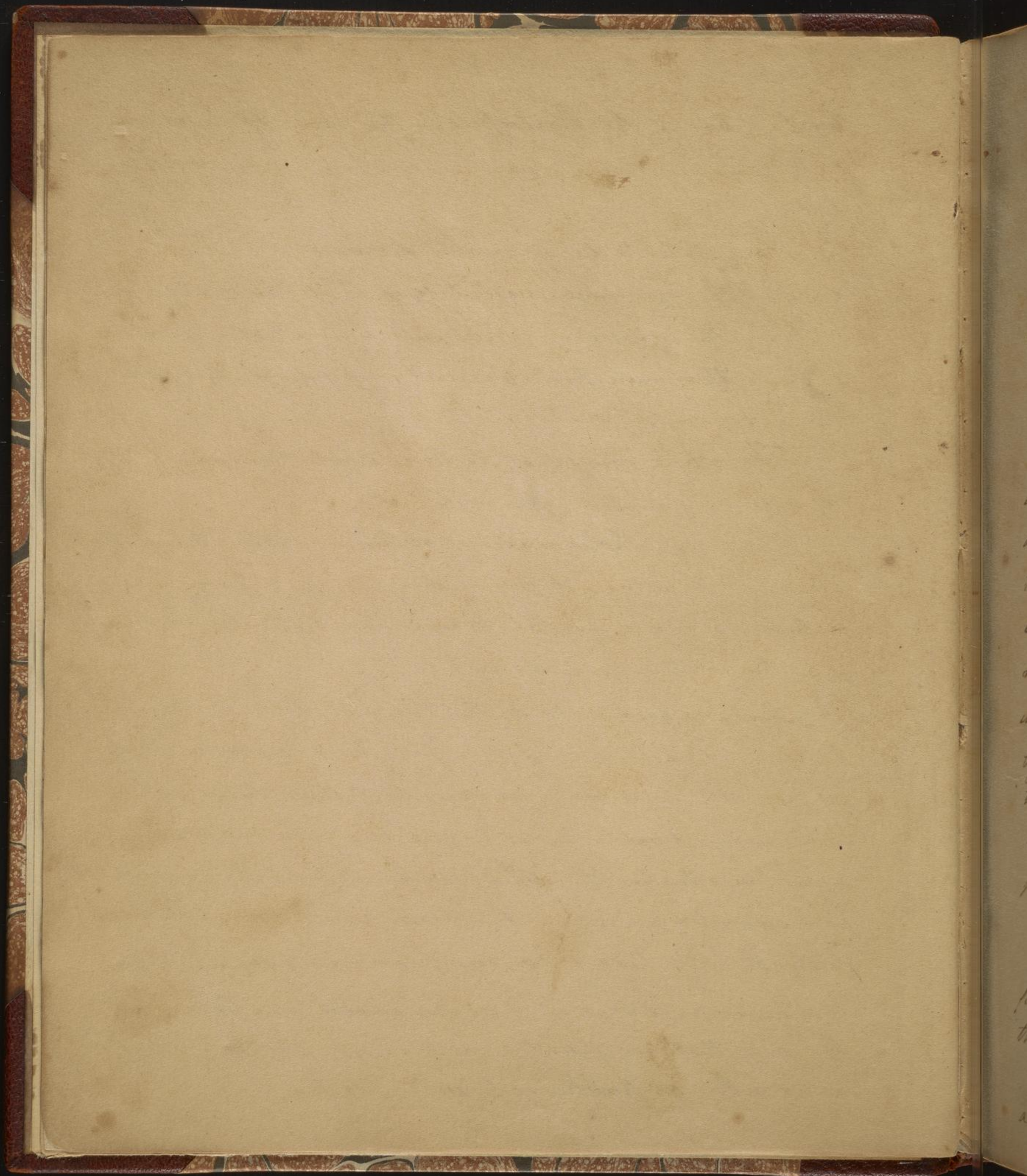
- 1 From the ignorance, neglect &c of their Physicians.
- 2 From the ignorance, carelessness or inattention of nurses.
- 3 From their own prejudices and imprudence, and from the intrusion of visitors.

The whole course of Lectures which I am going to deliver will be founded upon facts only.

There are three modes of obtaining instruction in the science of medicine. 1 By reading Books. 2 From hearing Lectures. 3 By a careful examination & attention to the symptoms & diseases of the sick.

We have no good works on the theory of Medicine, and the history of diseases is very imperfect. Their symptoms being improperly described; in cases of Phthisis Pulmonalis I have always found a moist tongue one very remarkable symptom attending it, but I have never seen it mentioned as a symptom, in any of the books which are published. you will often hear & see symptoms in practice which you have never read of. I would advise you to read all the cases that are printed, and record all those which occur either in public or private practice.

By



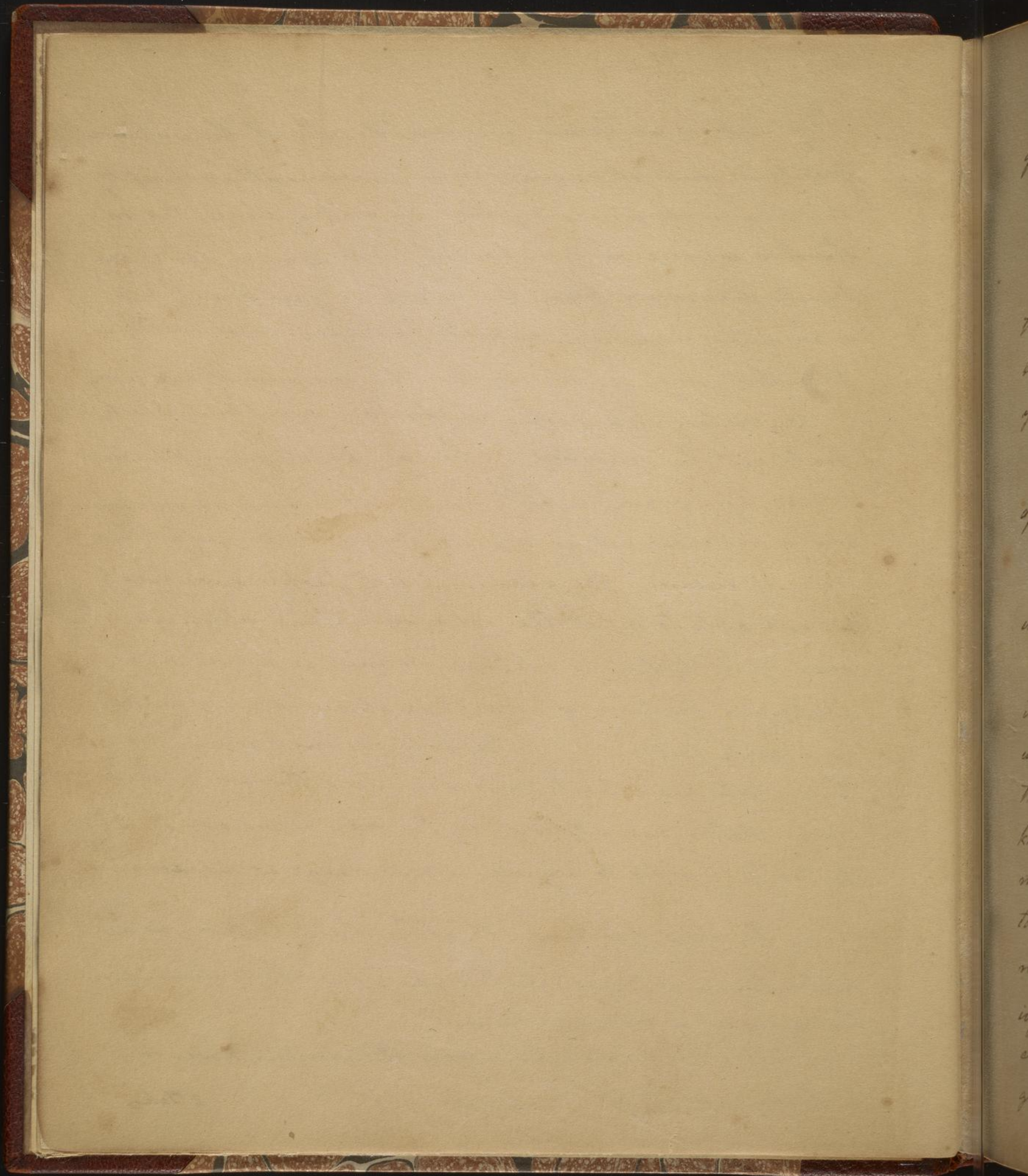
By Lectures we become acquainted with all the improvements in medical science more conveniently & cheaply as well as more pleasantly, than by reading alone. The instruction we receive from hearing them is more easily retained in memory than that which we gain from books, as we retain knowledge acquired by the ears more easily than that which we receive thro the medium of our eyes.

By visiting sick people we discover symptoms which could not be described in books. By studying diseases in real life we are more ^{able} to counteract erroneous opinions, and correct false notions acquired by reading imperfect histories of diseases. By examining sick people ourselves - we are able to detect the false symptoms which we read of in books, for instance, mania is described as unattended by fever, whereas it is always accompanied by a quick pulse. Happily for our science, for these forty years past, Physicians have thrown by their large Folios and sit down by the ~~sides~~ ^{sides} bedsides of their patients in order to acquire a knowledge of diseases.

In order Gentlemen, to ~~make~~ ^{render} these Lectures as profitable to you as I can, I shall make a few observations upon the manner of attending them.

1 Be very punctual in your attendance, never miss a Lecture if it can be avoided -

2 Take



2 Take brief notes, and when you return to your lodgings enlarge them as much as your memory will admit.

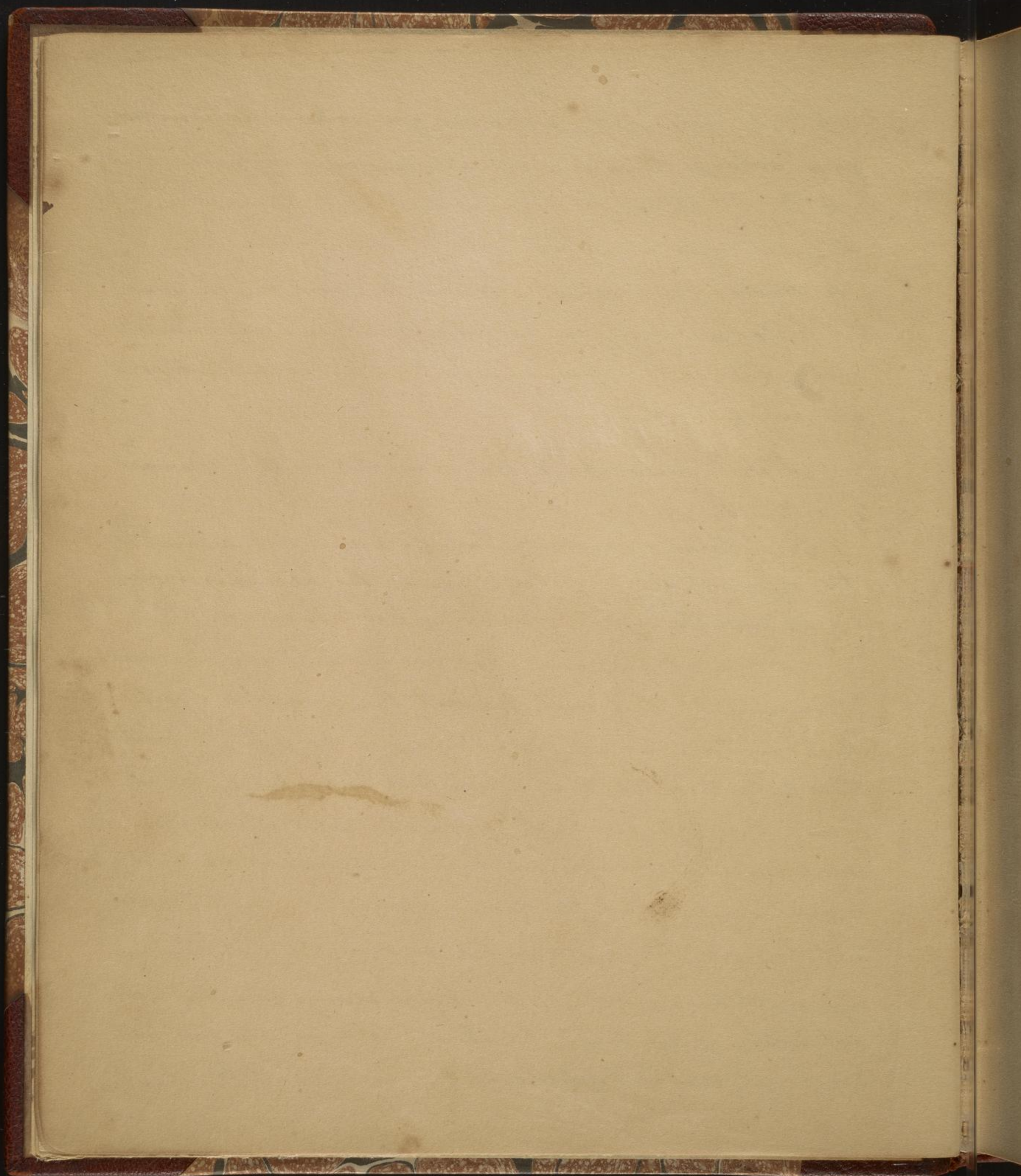
3 Do not attend too many courses of Lectures at once, they will confuse you

4 Make it a constant practice to think & talk over the Lectures which you have heard, when you return home, this will serve as a test to discover whether you understand them -

I will now make a few remarks on the Manner of visiting the sick -

1 Visit them once every day. Keep an exact account of the different stages of the disease, the remedies made use of, and the effects which they have produced -

2 Visit them at the same hour every day if you can make it convenient, this will prevent the injurious effects which sometimes arise from Physicians neglecting to visit their patients at the hour which they had appointed. I knew a lady who was kept awake all night which very much increased her disease by her Physician's neglecting to come & see her at the hour appointed. Visits should not be paid too early in the morning, nor at the family's meal time. A Physician should always give his patient notice of his coming, he should take off his hat and great Coat, which if wet should not be taken into the chamber,



3 Be careful to furnish your patient with medicines as soon as you have prescribed them

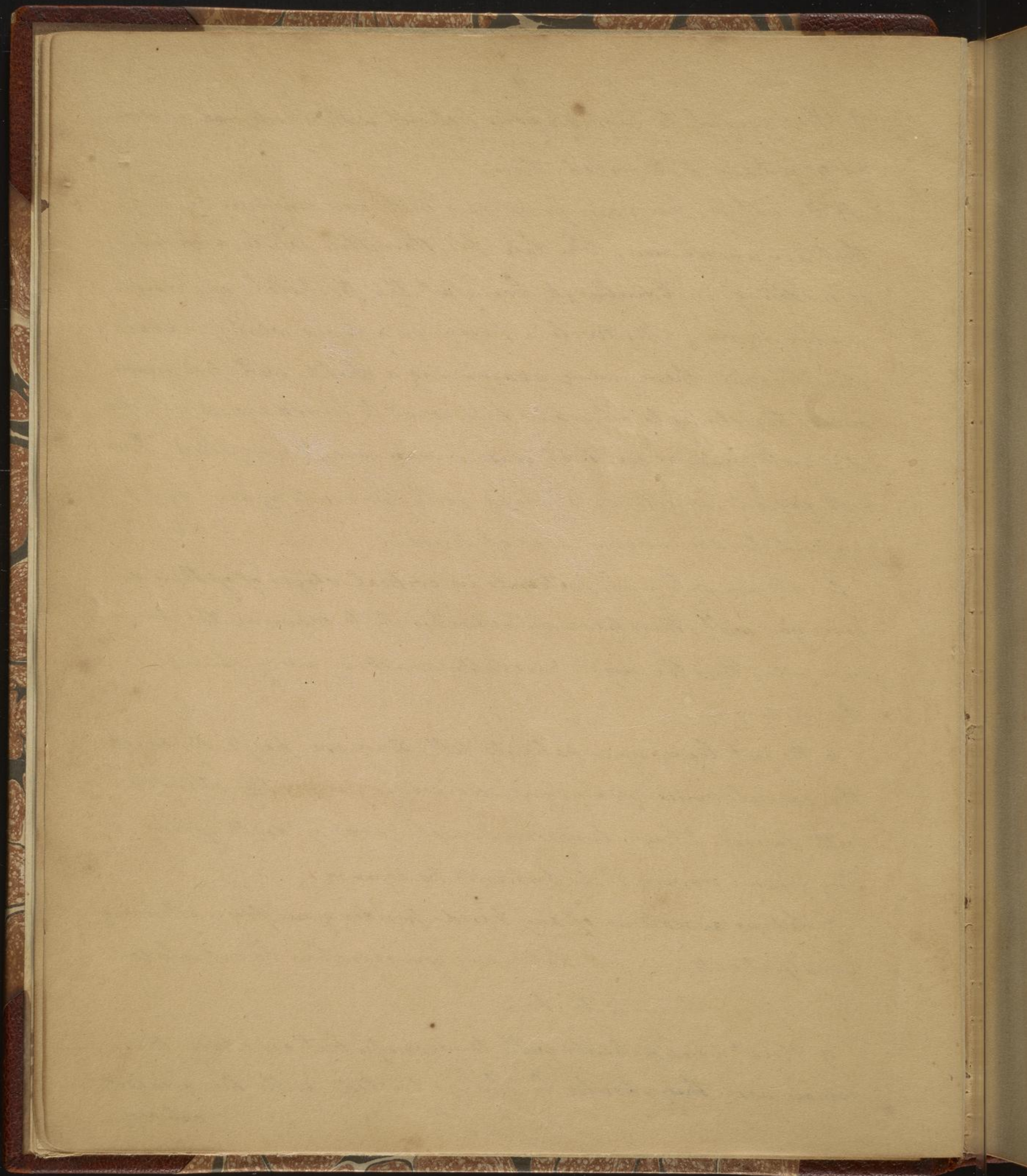
4 Do not be led away from cases that are common by those that are uncommon. The late Dr Hamilton while a student of medicine in Edinburgh, being at the Hospital one day - examining very attentively a person in a fever, whilst several other students there were examining a child with two heads, one of the students observing him went to him & asked why he did not come & see that uncommon case, he replied "I do not expect ever to see a child with two heads again. but I expect to see many cases of fever".

5 Sit up with your patients in critical stages of of their diseases, you will then have an opportunity to examine the pulse very often thro the night, carefully marking every change in the disease -

6 Do not leave your patients till they are perfectly cured. the convalescence from some diseases is frequently attended - with danger. I have known several cases of death from - Physicians leaving their patients too soon -

7 Let no avocations of any kind hinder you from attending your patients. 8 Let your conversation be calculated to inspire them with hope

9 Treat your patients with tenderness, but especially the female sex; they should be always treated with the greatest delicacy



delicacy. I hardly ever knew a young Physician that became respectable & eminent in his profession, who sported with the diseases of females.

We proceed next in order to give some Rules to be attended to in Visiting a Patient.

1 A Physician should shew the utmost respect & good breeding toward his patient.

2 When your patient is up stairs, if a lady accompanies you, go before her until you ascend the stairs, wait till she opens the door & goes in, you then follow her. When you return let the lady go before; delicacy requires this.

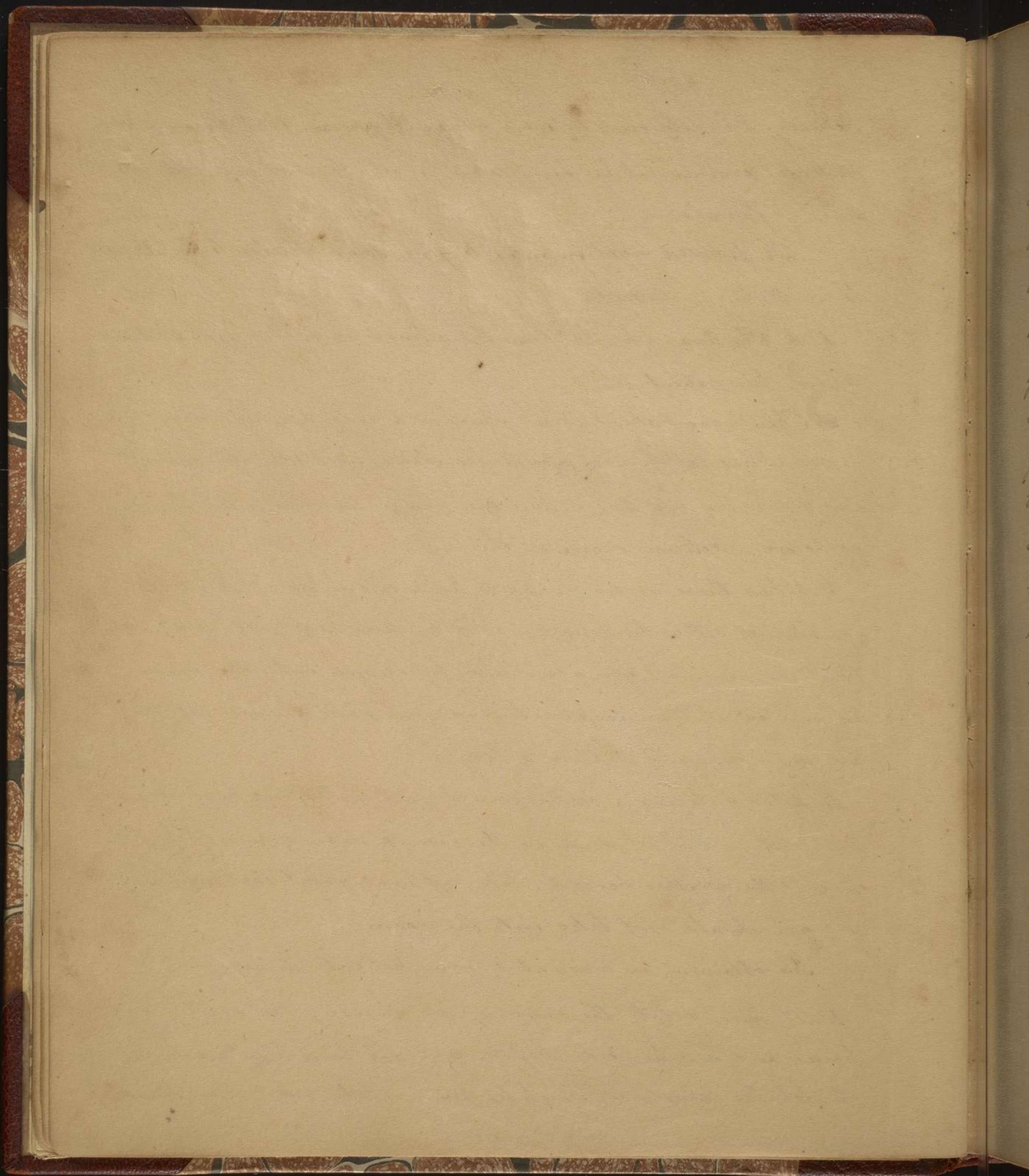
3 When there is no person to accompany you up the stairs, you should either by your voice or by knocking give your patient warning that you are come, before you enter the room. In some cases it is necessary to send your patient word that you are come especially if it be a lady.

4 After entering a sick room do not feel your patient's pulse immediately, but sit down in the room & warm yourself by the fire if the weather be cool, take off your great coat which if wet you should not take into the room.

In obtaining an account of your patient's disease

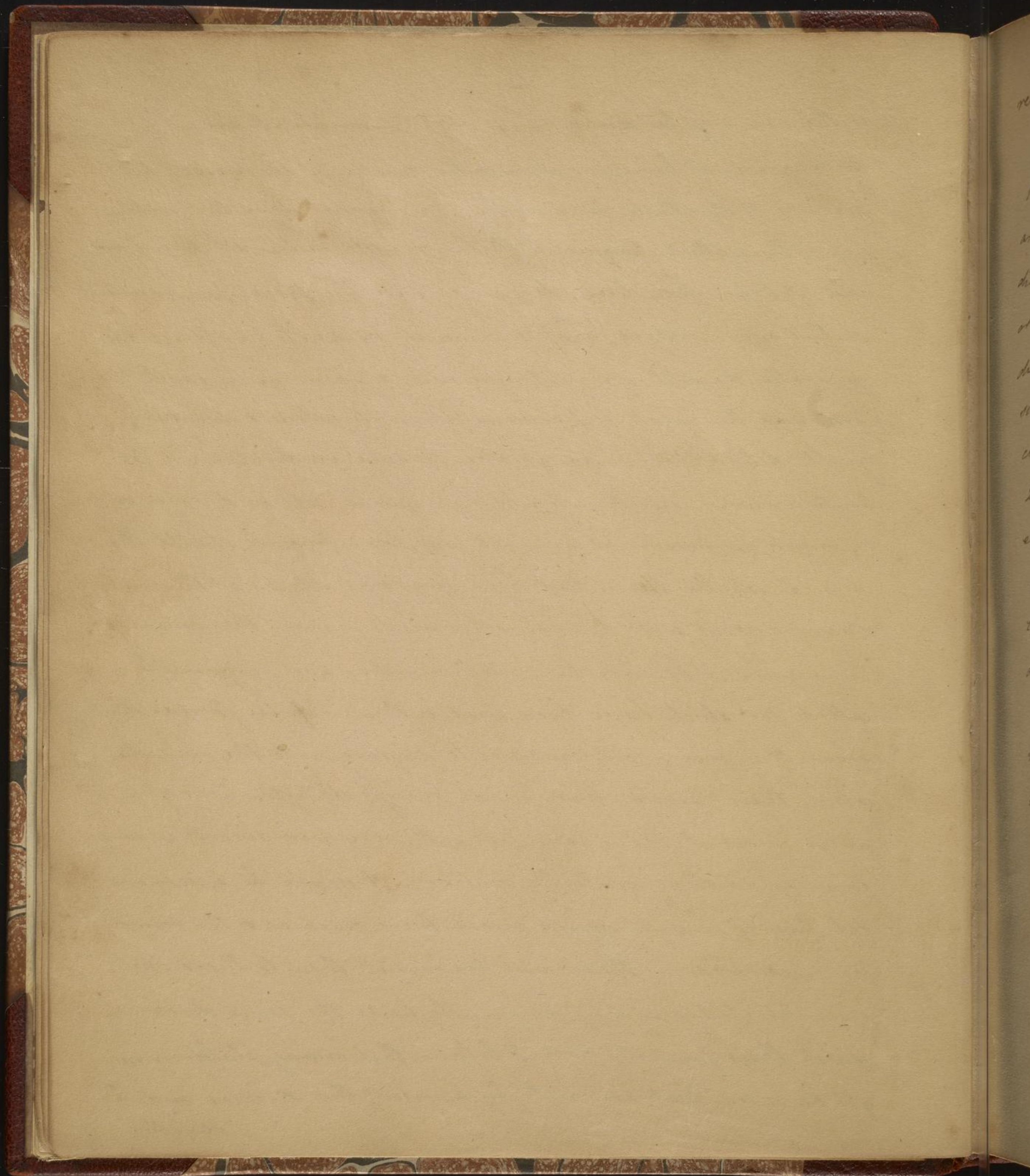
1 Let him relate the cause of his disease, the seat of his pains, and how he feels, before you ask him any questions.

2 Let the family in which he lives, relate what they think



is the cause of his disease, and what his complaints are -

I Enquire of him yourself into the duration of his disease, the manner of its attack; diseases are often violent from the suddenness of their attack. Enquire into the remote causes, whether from cold, fatigue, fear, love, despair &c. into the predisposing cause whether age, habits &c. gout & seminal weakness in old age, are generally brought on by intemperance & onanism in early life; into the habits of previous life as to eating & drinking. guilt, debt & love have great influence in disease. A patient's native country should be enquired into, as diseases vary much in persons of different countries. Enquiry should also be made whether there had been previous attacks of the same disease & what were the remedies made use of; the reason of this enquiry is because the same remedies are frequently called for which have been used with success in former diseases. It is also of consequence to enquire into the remedies which their families have made use of; we often hear of a purge or sweat being attended with very good success in some families, in others quite the contrary. It would be a very useful thing if parents would record their diseases & the remedies prescribed for them, and transmit them to their children, for children very frequently have the same diseases which their parents had. I believe that many children might be cured that are not, by knowing the diseases and
remedies



remedies of their forefathers -

1 Enquire into the seats of diseases. Although disease is a unit, as I hope to prove to you hereafter, yet some parts are more disposed to it than others. When disease is seated in the brain or stomach, prompt remedies are required. The seat of a disease is not always easily discovered, in this case exercise, such as riding on horseback, by increasing the excitement, discloses the doubtful affection.

2 Enquire into the state of the alimentary canal. Many diseases, especially fevers, first take place in the stomach & bowels.

3 Into the state of the urine, whether it be discharged in large or small quantities, and whether there is pain in discharging it.

4 Into the state of the skin, whether it be dry or moist, whether cool or hot, or if the heat be partial or general, whether it be of its natural colour &c.

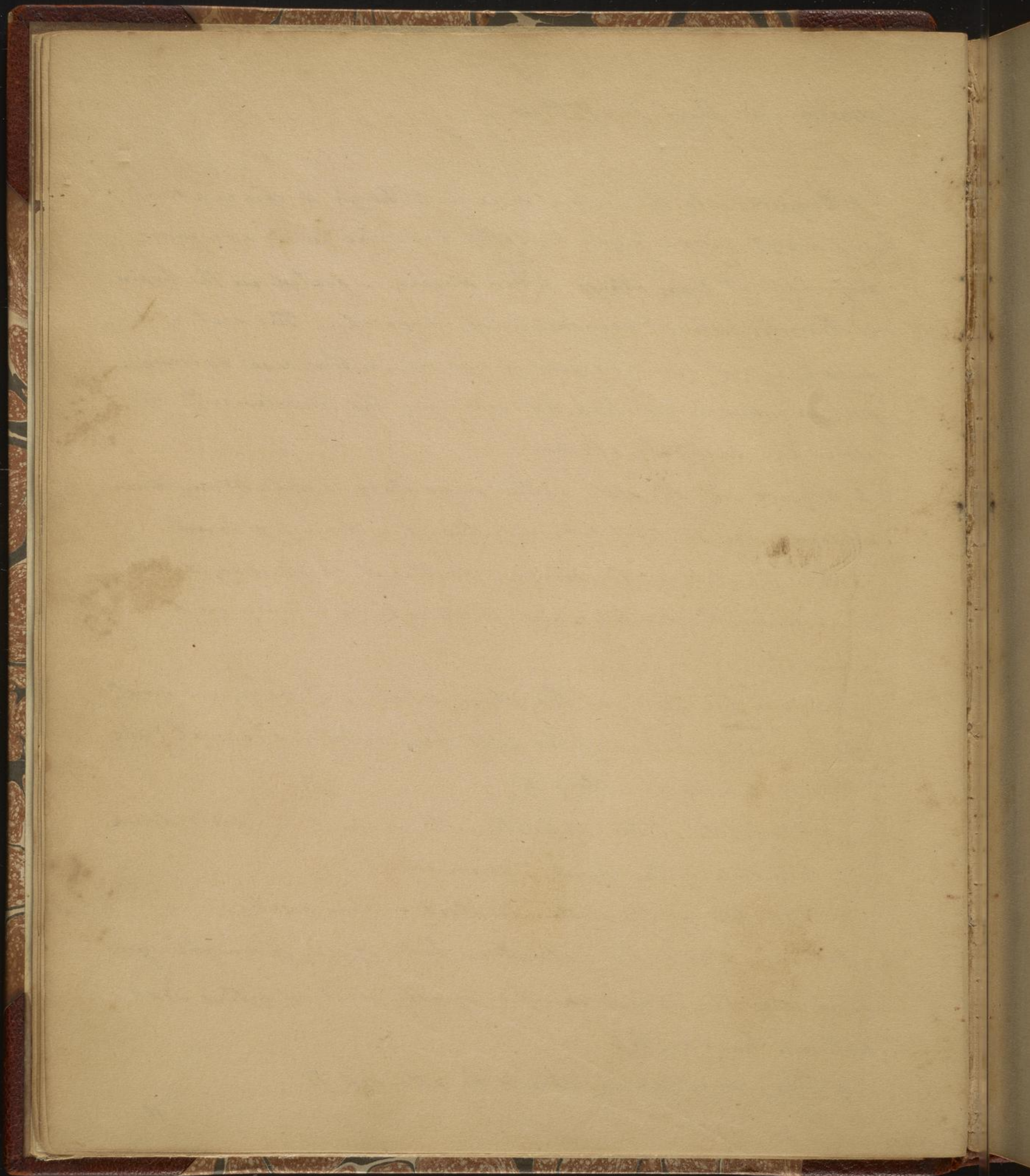
5 The state of the appetite with respect to food & drink.

6 The state of the mind, memory &c.

7 The state of the system in sleep & when awake.

8 The position of the patient in bed. It is a favourable symptom when the patient can lie equally well on either side without being restless.

9 The countenance should be attended to.



10 The eyes should be attended to, particularly the state of the pupil, whether dilated or contracted; whether they are red, watery, or languid.

11 The state of respiration, whether it be difficult, or not.

12 The Voice

13 The tongue should be inspected to discover whether it be dark, black, dry or natural; drinks & substances chewed in the mouth sometimes colour the tongue.

14 The nails should be inspected as to their colour, whether yellow, red, or black.

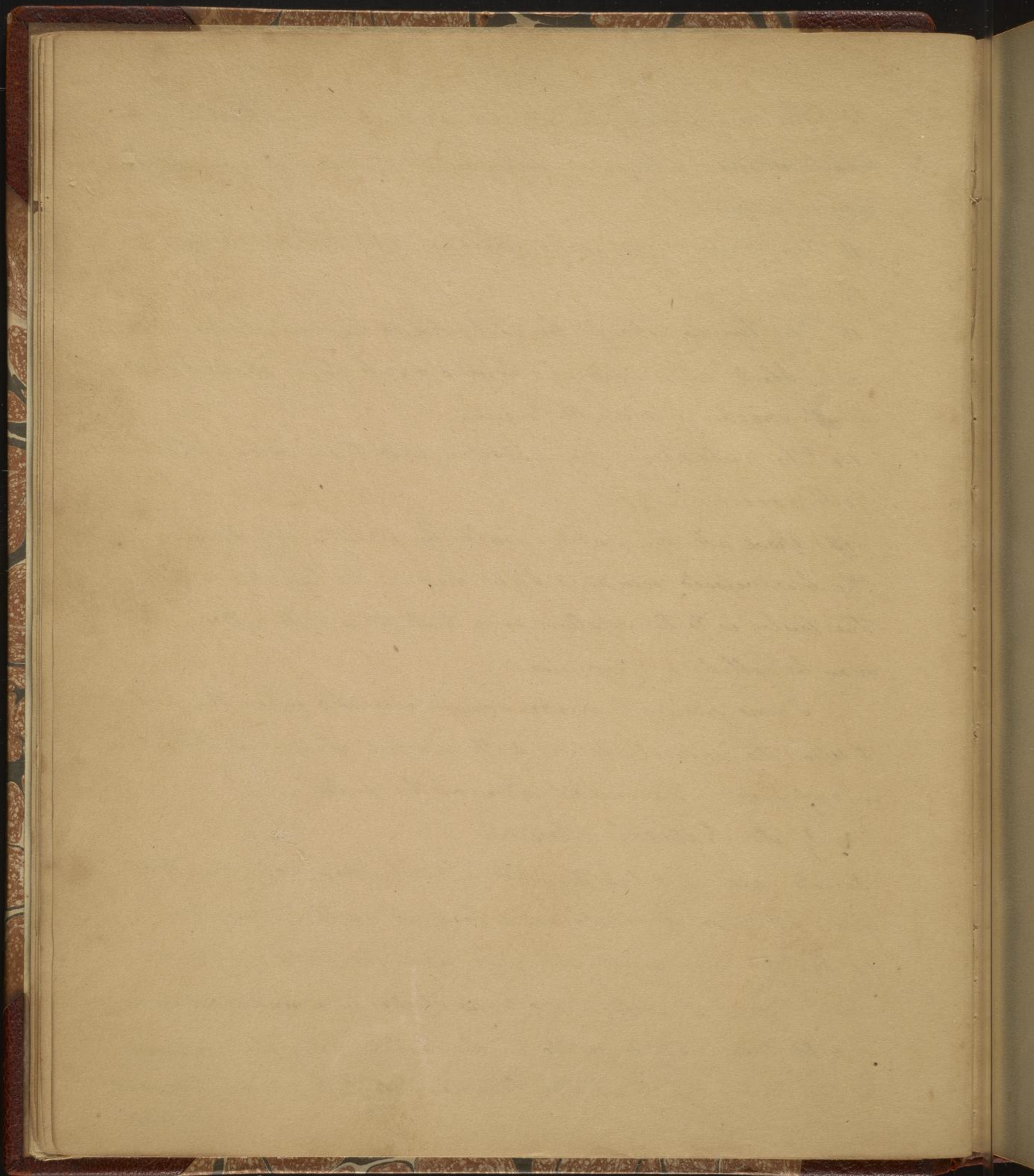
15 Above all the pulse should be particularly attended to. The bloodvessels occupy a high rank in the human body. — The pulse is to the system as a Dial-plate is to a Dial. — It may be called a Nosometer.

I now proceed to make some remarks upon the pulse, 1 Upon its natural state. 2 Its morbid state. — 3 The manner of judging the morbid state of the pulse.

I Of its Natural State.

In its natural & healthy state it soft, open, vigorous, free from all sense of resistance & beats at equal intervals.

1 Age has very great influence upon the pulse. In a new born infant it is from 130 to 140 strokes in a minute; in an adult from sixty to eighty in the healthy state; its medium is 66. In old age the pulse becomes less full, more frequent, and



and liable to interruptions: a regular pulse in old age is a sign of disease. It sometimes sinks as low as 42. Dr Heberden mentions a case of the pulse in an old person being as low as 26 in health -

2 Sex influences the pulse, it is quicker in women than in men -

3 Civilization has an effect on the pulse, it is more frequent in civilized than savage people -

4 Size influences the pulse, it is quicker in persons of low stature, than in those that are very tall. In very tall persons it is ~~at~~ 55 in health.

5 Climate causes a difference in the pulse; it is slower in cold than hot climates, and in winter than summer -

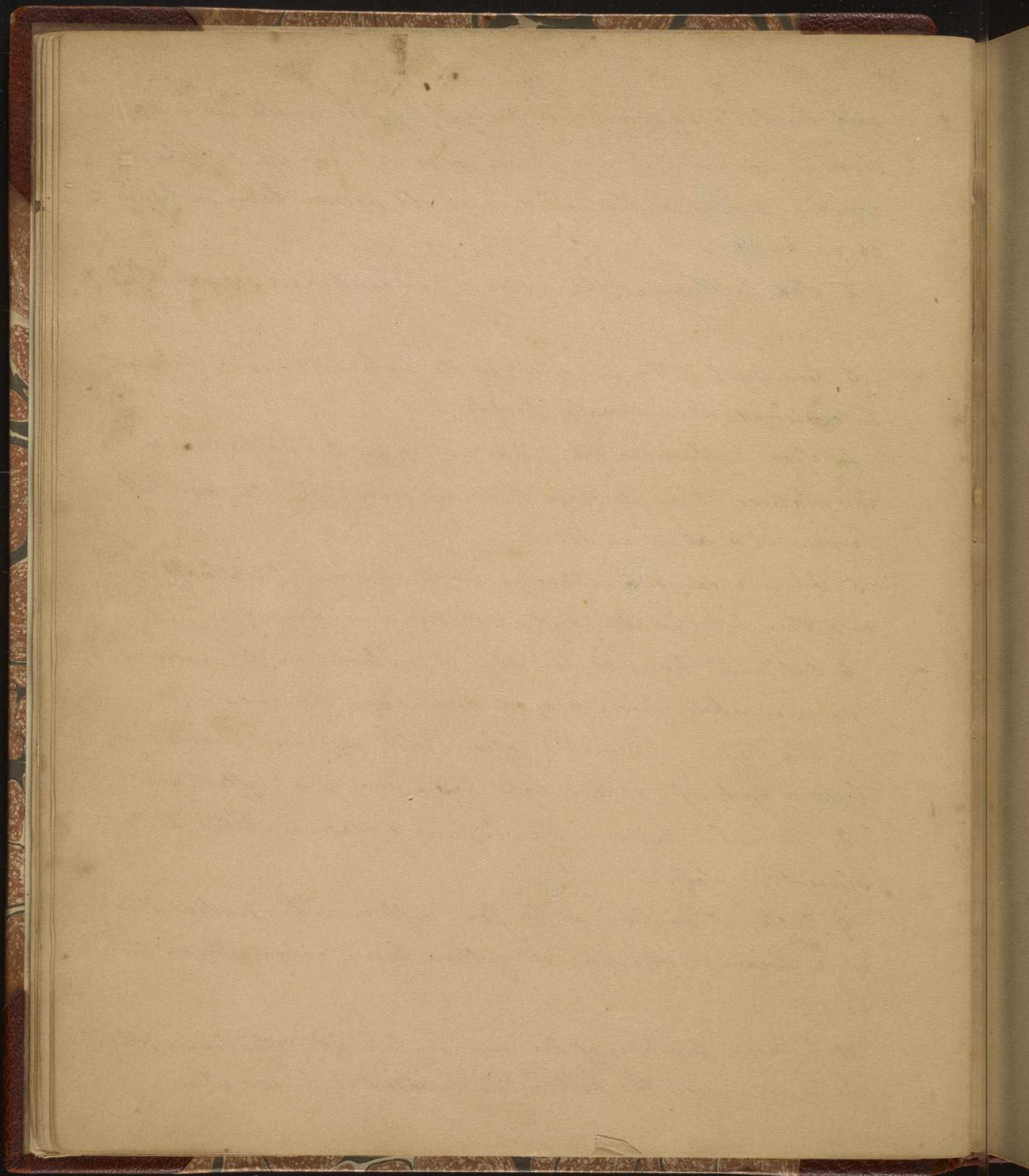
6 Different times of the day, it is slowest in the morning, increases about noon & again declines in the evening

7 The pulse increases & lessens with different degrees of light & darkness, sudden light has a very great effect on it -

8 The pulse differs in the sleeping & waking states, it is slowest in sleep -

9 Different positions of the body influence the pulse, it is more frequent when standing than lying, especially on the back -

10 Different positions of the arm in bed affect the pulse, when the arm is under the body, or is uncovered it lessens it -



11 Food & drink influence it, it is reduced by fasting for some time, then it becomes quickened

12 It is increased by conversation, by exercise intense — thought it is probably owing to the fixation of thought that animal magnetism sometimes produces such effects —

13 It is more frequent in pregnancy & menstruation, in coughing &c. Opium, Bark & Blisters increase it, this should be distinguished from a morbid pulse. as soon as their effects go off it returns to its natural state

14 There is the Opium pulse, the Bark pulse, the Mercurial pulse, the Blister pulse and the morbid pulse —

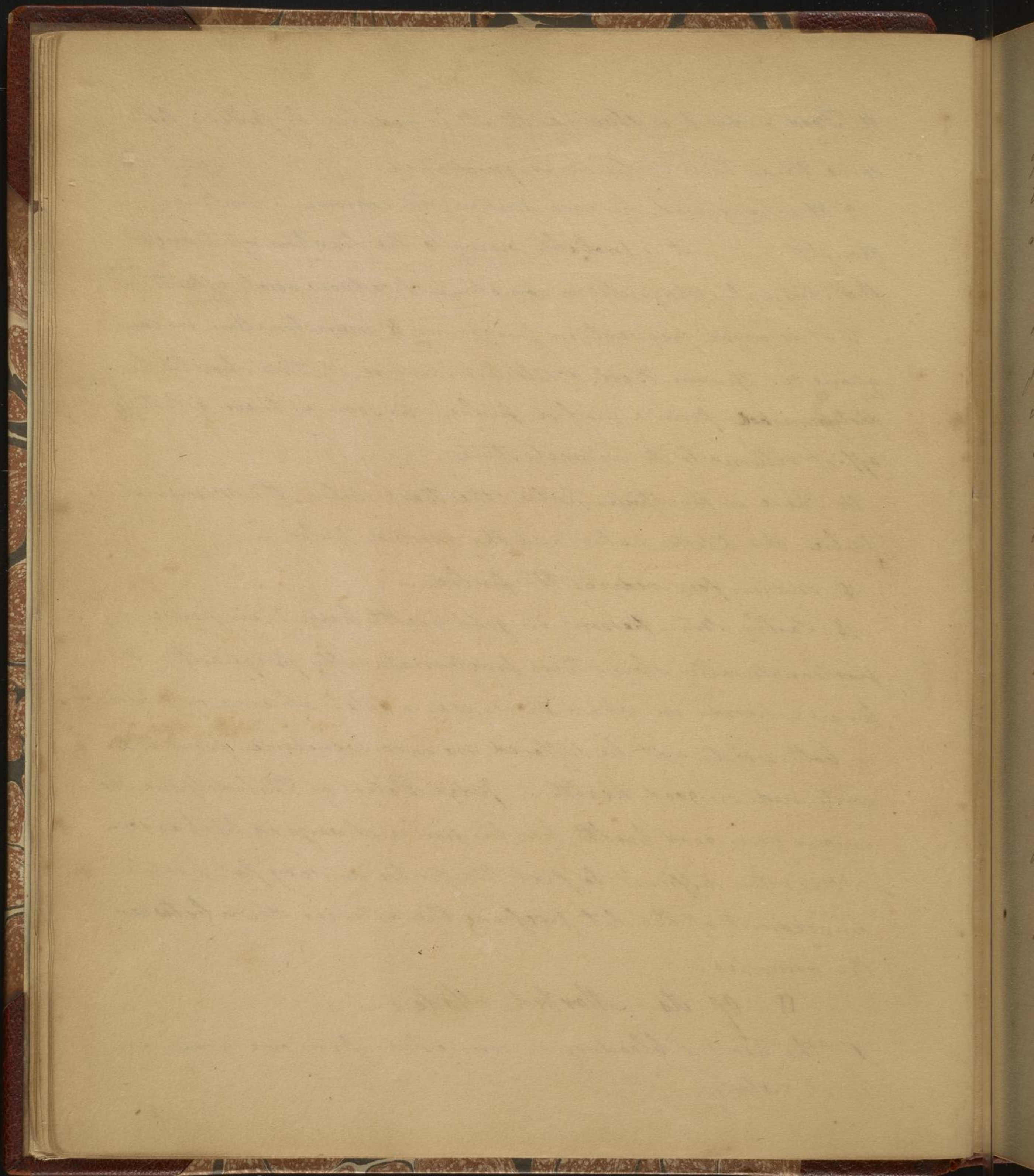
15 Sudden fear reduces the pulse —

16 Lastly. Some persons in good health have their pulse — preternaturally slow, others preternaturally frequent. I knew a person in whom there was a total absence of pulse in both wrists, yet he suffered no inconvenience from it & continued in good health — Judge Peters of Philadelphia, who enjoys very good health has his pulse always as high as 100 —

It is often difficult to feel the pulse in very fat people, on account of the fat pressing the arteries down between the muscles —

II Of its Morbid State —

1 The heart & bloodvessels connected form one great integral whole —



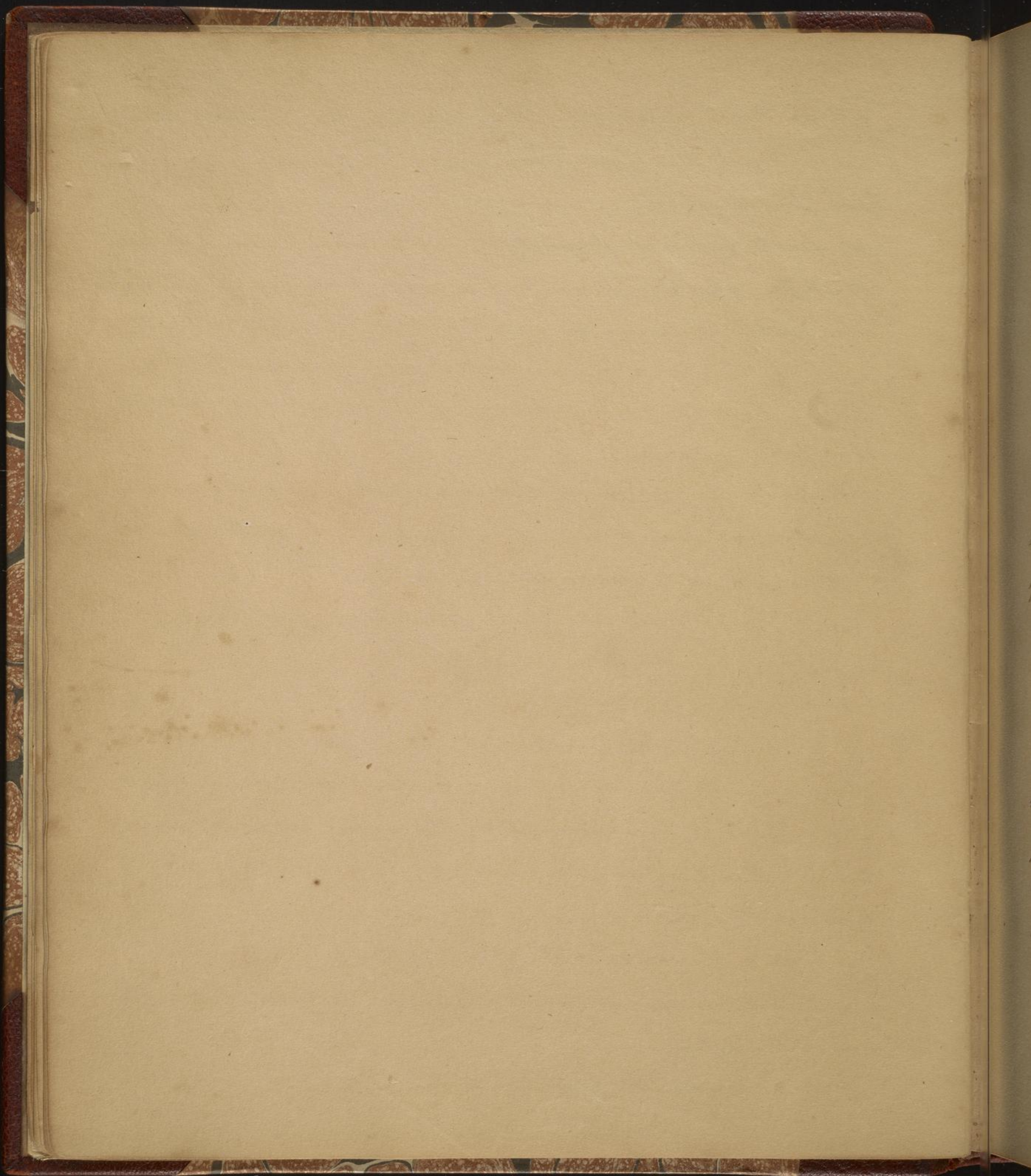
2 The Heart & Arteries - They are like the sensitive plant if you touch the least fibre, you put the whole in motion. This sympathy is much greater in internal than external parts; by this we frequently discover the nature of internal diseases.

3 Motion excited in one part is communicated to all the other parts - aneurism discovers itself by a tremulous motion or jarring of the pulse - In inflammation of the bowels the pulse is tense & small; in inflammation of the brain, liver & kidneys it is full

The Heart & arteries do not always sympathize, but the exceptions are few. Insulated diseases particularly of the lungs & womb do not always affect the pulse.

The interruptions of the Heart, and of all the Arteries arise from the following causes -

- 1 A want of irritability.
- 2 From suffocated excitement. If the pulse be soft in Pneumonia rather it is owing to the lungs being engorged with blood, pressing upon the artery so as to prevent tension; this I infer from two or three small bleedings - producing tension -
- 3 From a disordered state of the Heart.
- 4 From tumours, or large masses of external fat pressing on the artery
- 5 From accidental pressure of the muscles -



6 From diseases of the Heart—

7 From irritability in the contiguous parts, or by the sedative effects of cold which contracts the radial artery so much as to impede the circulation—

8 From the system being diseased—

Silly blood with a weak pulse is owing to a partial or unequal excitement—

The circulation is much slower in an inflamed part than in a healthy one. hence the cause of abscesses, ulcers &c

The state of the tongue, the colour of the eyes, the countenance & voice should all be attended to in forming an opinion of a disease.— The inference to be drawn from this is to

Rely on no one sign, but upon all taken collectively—

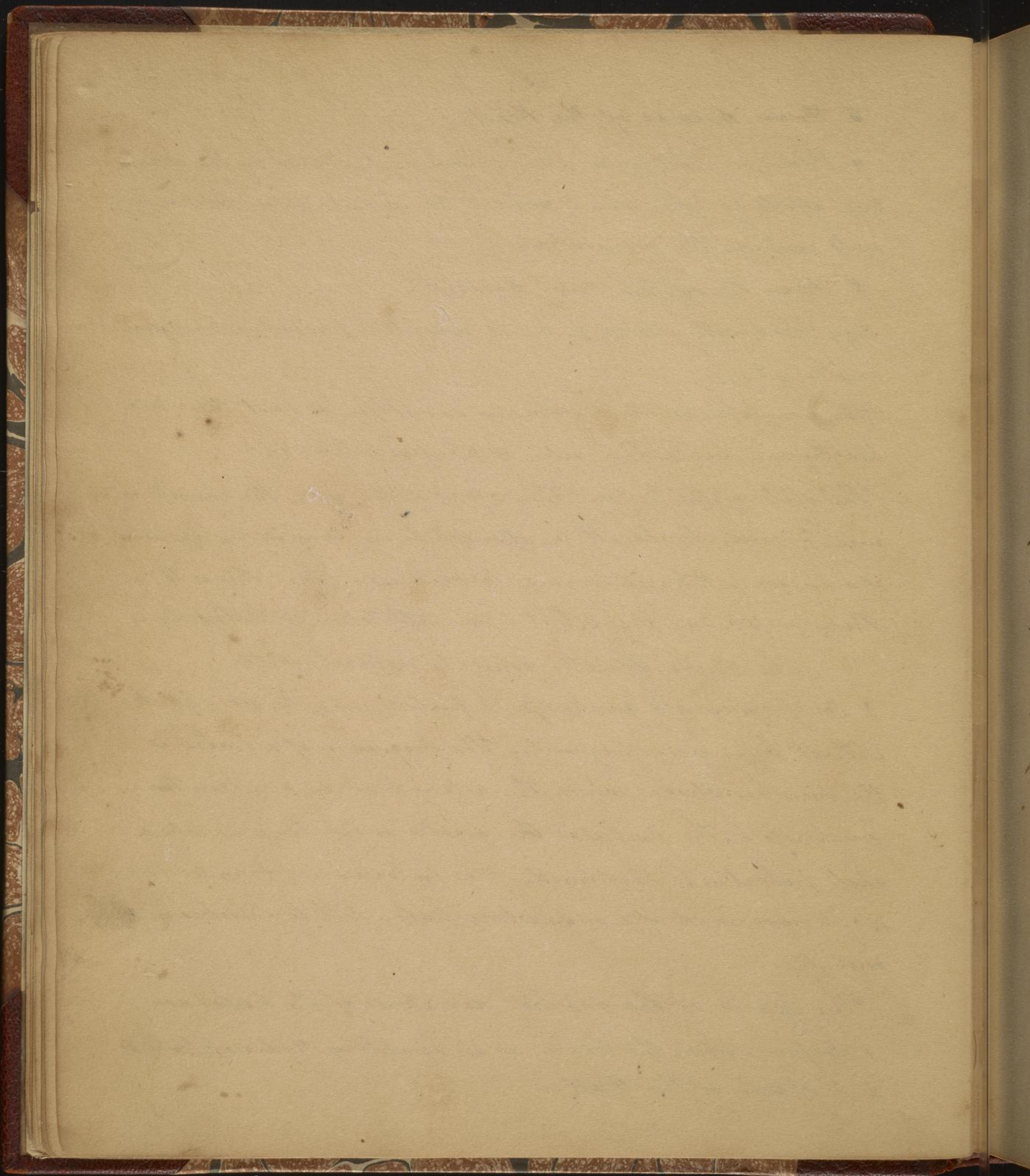
The Pulse deviates from its natural state,

I In frequency & quickness. A pulse may be very quick without being very frequent. The frequency of a pulse is the number strokes which the artery beats in a certain time. quickness of the pulse is the greater or less time in which each pulsation is performed. The pulse varies from 60 to 150. I have read of a man whose pulse fell to 7 strokes in a minute

The causes of the morbid deviations of the pulse are.

1 Pressure upon the brain, as in apoplexy, Hydrocephalus &c

2 A spasm of the Heart—



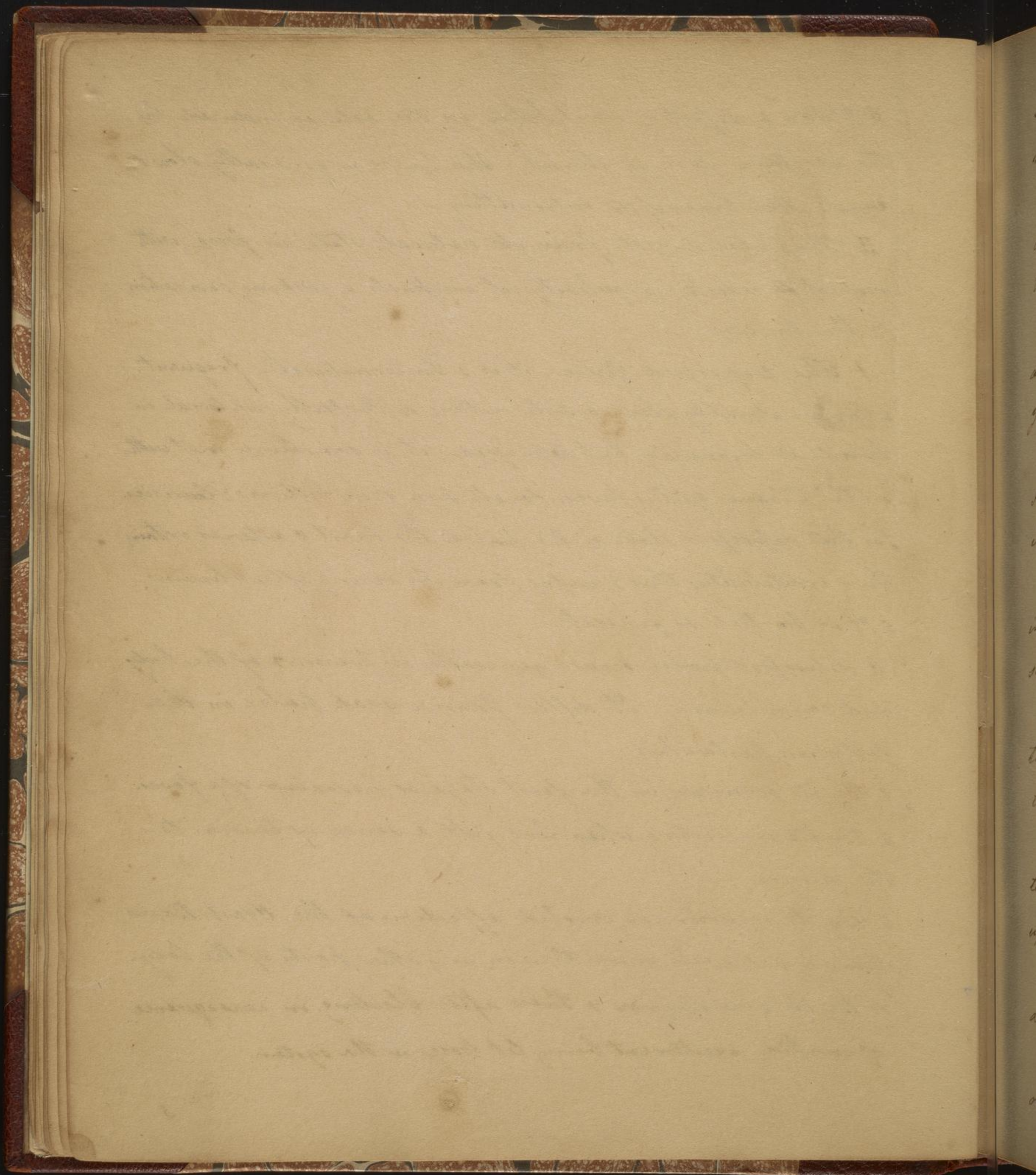
3 From a defect of irritability in the arteries, induced by the excessive force of stimuli: the pulse is generally slow & equal, sometimes it is intermitting -

II The pulse departs from its natural state in force, with respect to order & irregularity: it imparts a jerking sensation to the fingers.

1 The Depressed Pulse, it is 1 Preternaturally frequent, 2 Preternaturally slow, 3 Intermitting 4 Perfectly natural in point of frequency, but depressed, it is sometimes met with in the Plague, yellow fever, small pox & in Billious Pleurisies. In this depressed state of the pulse the heart & arteries retain their irritability; this I infer from its rising after bleeding - 5 It is partial, or general

A depressed pulse occurs generally in tremors of the body and convulsions - It differs from a weak pulse in the following particulars

- 1 By its occurring in the first stage or paroxysm of a fever.
- 2 By its imparting when long felt, a sense of tension to the fingers
- 3 By its occurring in morbid affections of the Heart, Brain, Stomach & Bowels, more than in any other parts of the body.
- 4 By its occurring now & then after bleeding, in consequence of morbid excitement being let loose in the system.



5 By being occasionally attended with a preternatural slow-
ness ^{or intermission,} which is not the case in a weak pulse -

2 There is a distinct but small & tense pulse, which I call the Catgut Pulse; it imparts a sensation to the fingers like that of pressing a tense catgut -

3 There is a pulse which is full, round, vigorous, frequent, and quick, but without any tension or hardness. It occurs in yellow fever. I have called it the *Synochus fortis* Pulse -

4 Is the full, quick, frequent & tense but not round pulse. It occurs in inflammatory fevers. It feels like a quill. I call it the *Synocha* Pulse

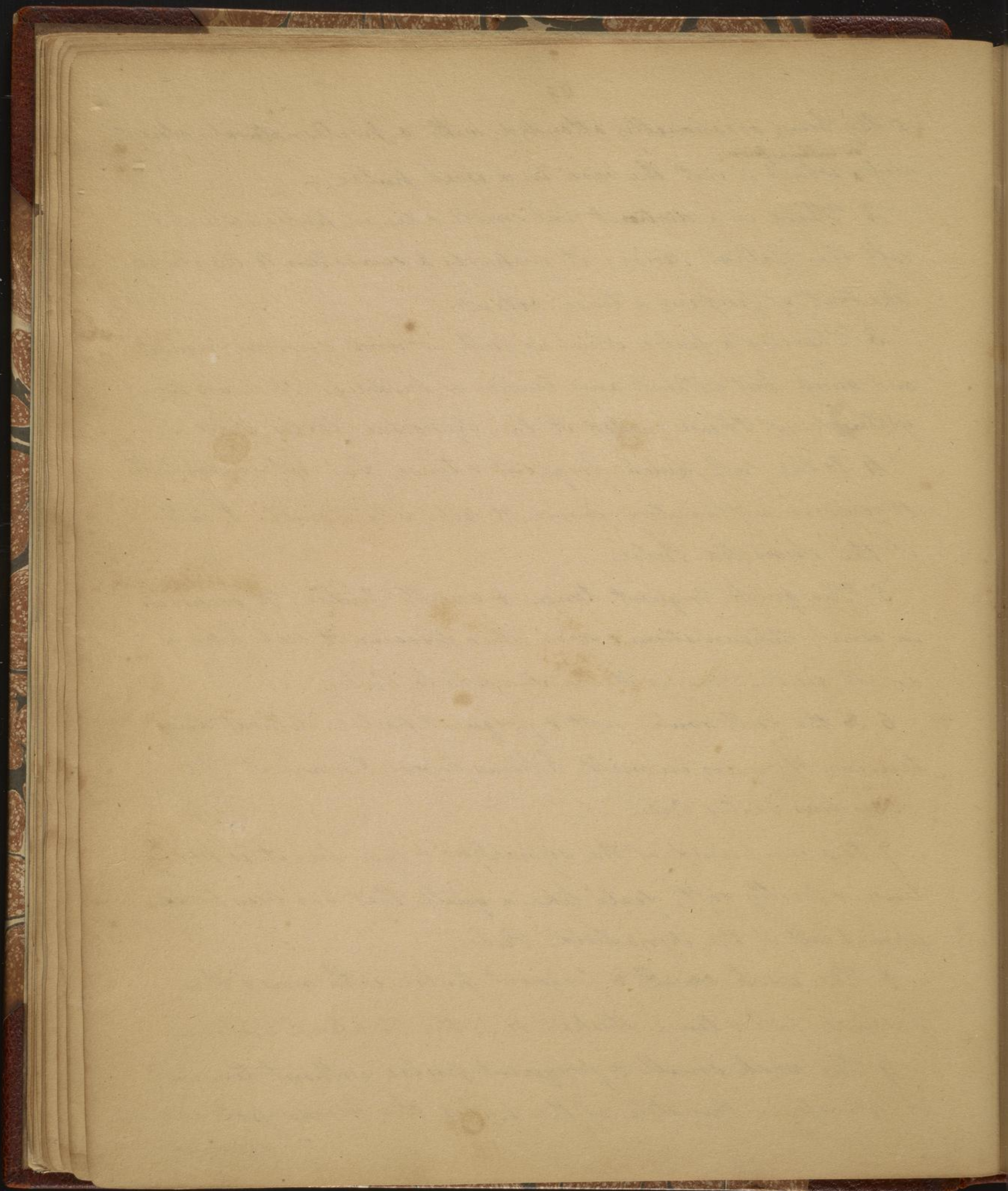
5 The quick, frequent, tense & small pulse. It occurs in chronic Rheumatism & some other diseases. It feels like a small quill. I name it the *Synochula* Pulse -

6 Is the full round soft & frequent pulse, without any tension. It occurs in mild bilious fevers. I name it the *Synochus mitis* Pulse -

7 Is a compound of the *Synochus* & *synocha*, it is partly tense & partly soft, feels like a quill that has been trodden upon. I call it the *Synochoid* Pulse

8 The ~~weak~~ ~~small~~ & frequent pulse with now & then a round, full & tense stroke. It is the Typhoid Pulse -

9 The weak small & frequent pulse without tension or fullness, in this state of the pulse the bloodvessels are
deprived



deprived of a great part of their irritability. This is the pulse that forbids bloodletting and admits of cordials, it occurs in in malignant fevers. It is the Typhus Pulse.

10 Is the natural, full round & frequent pulse, but so very soft as to fall by the pressure of the fingers upon it. It imparts a sense of emptiness to the fingers. I name it the Gaseous Pulse.

11 Is the quick & frequent pulse, rarely ^{sometimes} synocha, synochoid or typhoid. It occurs in Pulmonary Consumption. It is the Hectic Pulse.

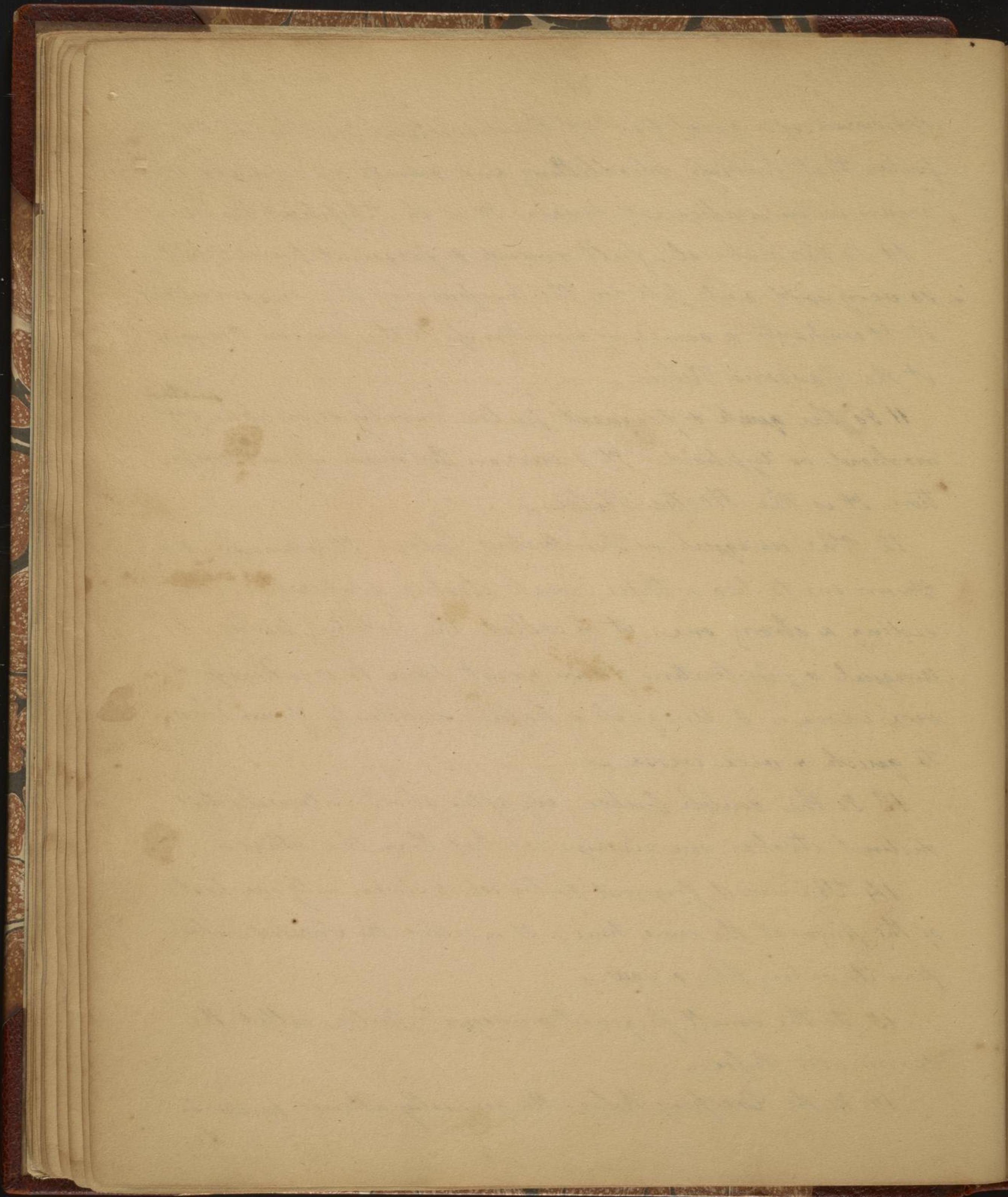
12 The unequal or Fluctuating Pulse. It is known, 1 - From one to two or three weak strokes gradually succeeding a strong one; it is called the hobbling pulse. 2 Unequal & fluctuating from great force to weakness & vice versa. 3 Unequal & passing suddenly from slow to quick & vice versa.

13 Is the double pulse, viz after short intervals two distinct strokes, one always weaker than the other.

14 The small, frequent pulse which strikes only one part of the finger at the same time. It is called the Serrated Pulse from its saking like a saw.

15 Is the small, frequent & unequal pulse, called the Vermicular Pulse.

16 Is the Creeping Pulse; this generally attends persons in
the



the last stage of life.

17 There is a pulse which is apparently natural, it occurs in yellow fever &c and is attended with great danger; we must here have recourse to other symptoms, it is the Morbidly Natural Pulse.

The action of the heart & arteries seem to depend on the state of the Cerebellum, instances having occurred of diseased Cerebrum existing without altering it.

In an intermitting pulse the pulsation immediately succeeding the intermission, is twice as strong as the preceding ones.

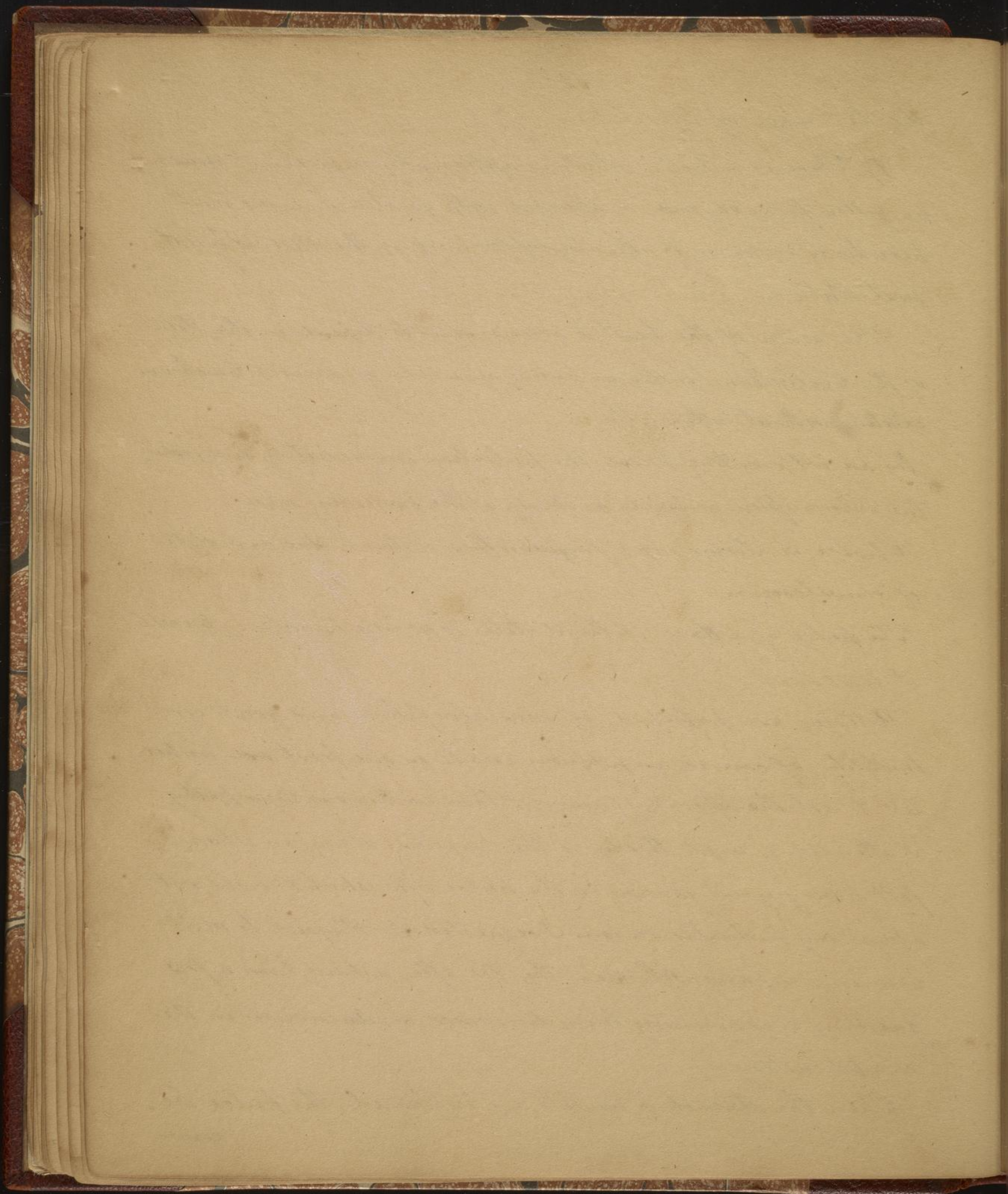
A pulse is always more frequent than natural during a state of convalescence.

The pulse of a Horse in the U States is 40 in a minute in Europe it is 35.

Arteries are composed of muscular fibres, and great contractility; of course impressions made on one part are imparted to all the others by means of their continuous sympathy.

I attended a Capt. Hardy of the American Navy, in whom I felt a very great jarring in the pulse, for which I could not assign any particular reason. I requested Dr Physick to visit him in company with me, the Dr after asking him a few questions & examining him, discovered an Aneurism in the carotid artery.

When the stomach & bowels are inflamed, the pulse becomes



comes tense & small, by reason of the arteries becoming smaller from inflammation & pressure upon them.

The pulse is rendered weak by lying upon the arm; by diseases which affect one part only; by diseases being insulated in the lungs & womb; we are therefore not to be deterred from bleeding in the beginning of Pulmonary Consumption by weakness of the pulse, we are to bleed without regard to it.

Pain & foulness of the tongue does not always attend disease.

I have thus enumerated the different Pulses, but you are not to expect to find them distinctly marked in all diseases: they are often combined in a twofold, threefold & sometimes a fourfold state.

In a twofold state.

- 1 Quick and frequent
- 2 Depressed and weak
- 3 Slow & intermitting

Weakness & frequency of the pulse generally go together.

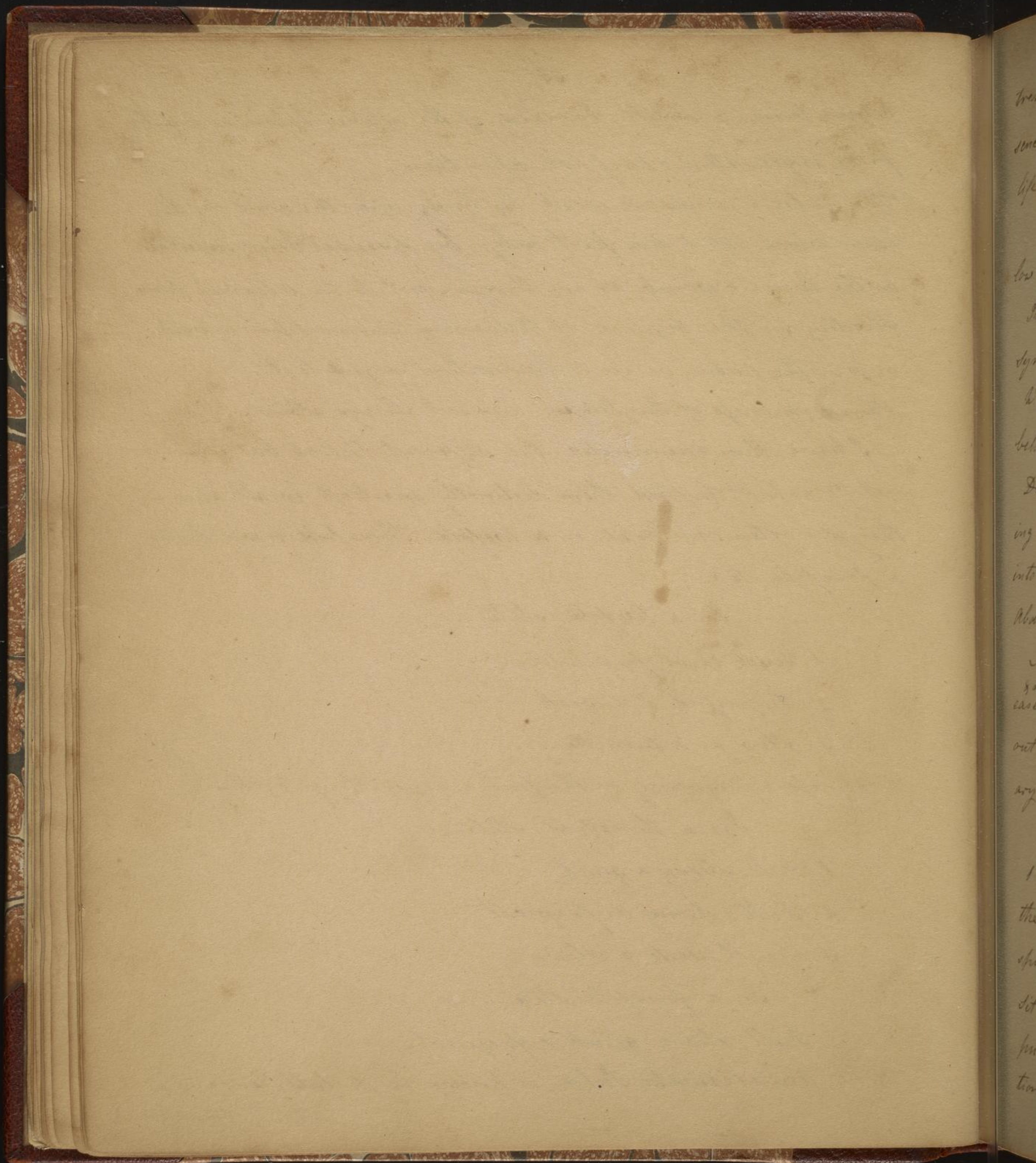
In a threefold state.

- 1 Full, strong & quick.
- 2 Full, strong & frequent.
- 3 Small, weak & slow.

In a fourfold state.

Full, strong, quick & frequent.

The Aneurismatic Pulse is known by its full, tense and
tremulous



tremulous or jarring motion. There is sometimes a total absence of Pulse for hours, and even days without extinguishing life. In Palsy it is generally fullest on the morbid side.

I divide the pulse into ten grades, five above & five below the natural state, which I place at 0.

In the Synochus fortis state of fever it is five above, in the Synocha, four above 0. &c.

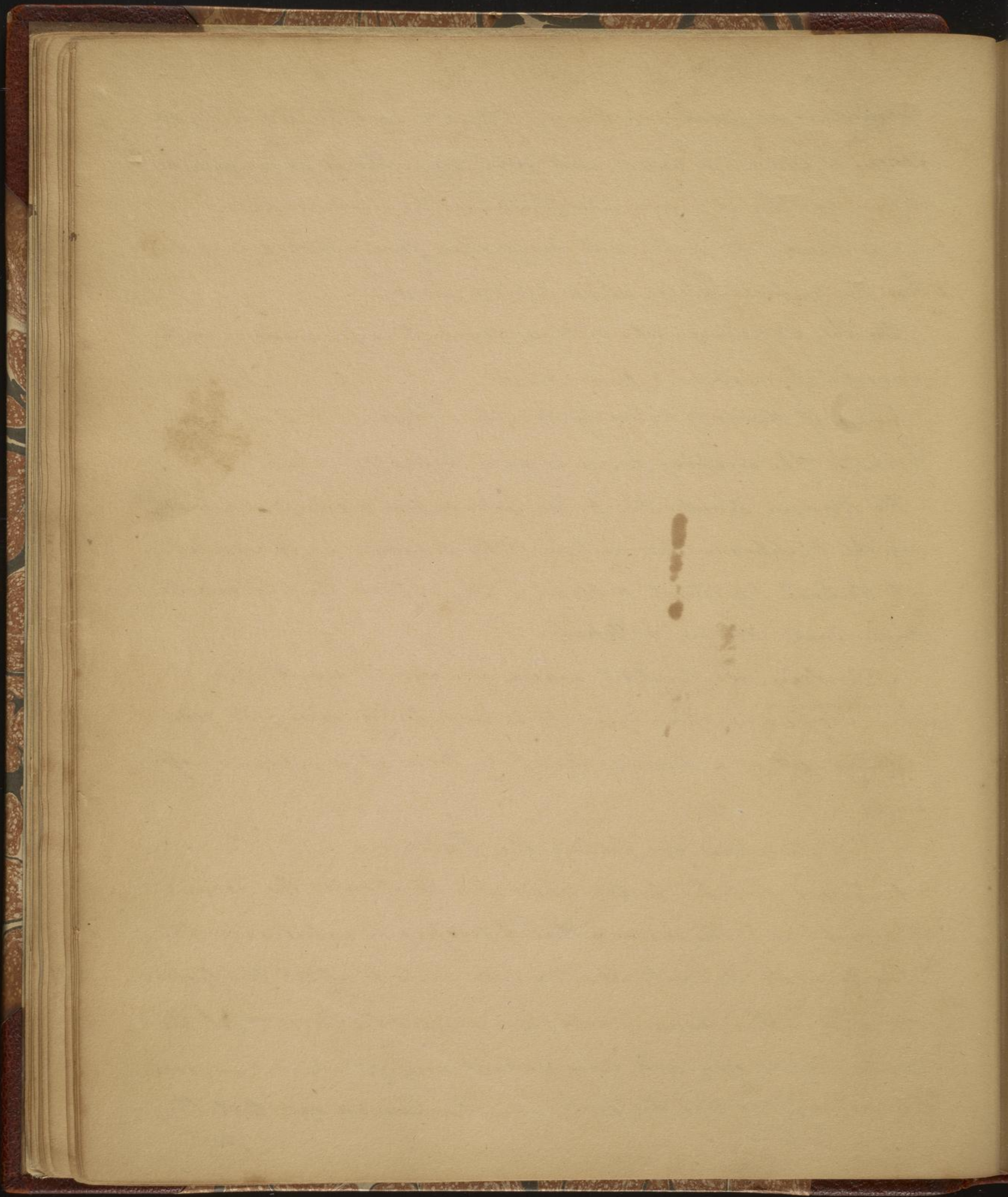
When it descends below by debility I place at three below 0. The creeping pulse is five below 0.

Dr Bordeau divides the pulse into Superior & inferior, making the Diaphragm the center. The superior he subdivides into Pectoral, Guttural & Nasal. The inferior, into Stomachic, Abdominal, Uterine & Hepatic.

Nosology is a fruitful source of error; it multiplies diseases, ^{& medicines} very unnecessarily. It is impossible always to find out the seat of a disease; happily for us it is seldom necessary.

Directions for feeling the Pulse.

1 Never feel the pulse when you first enter the room, the sight of a Physician either depresses or exhilarates the spirits of the Patient, which never fails to affect the pulse. Sit down in the room; if cold, warm your hands. - Feel the pulse before you ask your patient any questions; conversation always excites the pulse. Marksmen say that the first



for
s
2
you
sing
and
right
the
5
4
from
the
on
5
the
ten
be
un
fe
in
the
the
5

first sight at a mark is always the best, the same may be said of the pulse, the first feeling of it is the best.

2 Apply all your four fingers to the pulse, by this means you will have more sensations than when two or three ~~sax~~ ^{fingers} only are applied. When you feel the pulse of the right arm feel it with your left hand & vice versa. Let the pressure of the fingers be gradual & equal.

3 In doubtful cases feel the pulse in both wrists.

4 The arm in which you feel the pulse should be free from pressure, and placed in such a position as will relax the muscles: from inattention to the action of the muscles on the pulse, mistakes are often made.

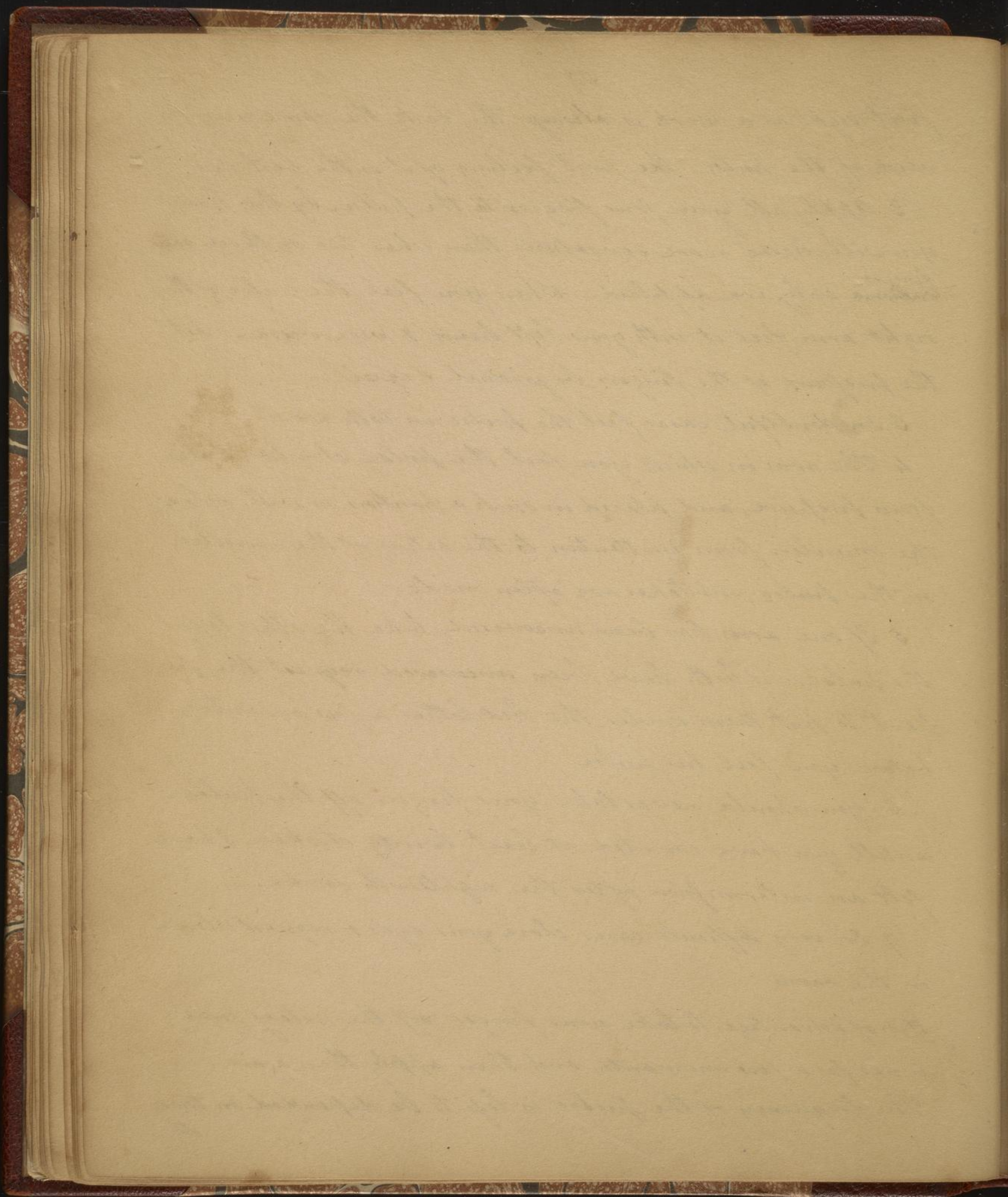
5 If one arm has been uncovered, take the other to feel the pulse: if both have been uncovered request the patient to put them under the bedclothes a few minutes before you feel his pulse.

6 You should never take your fingers off the pulse until you have counted at least twenty strokes. I have felt an intermission after the eighteenth stroke.

7 In very difficult cases close your eyes & request silence in the room.

It is of advantage to take your fingers off the artery sometimes for a few moments, and then apply them again.

The frequency of the pulse is left to be depended on than ^{its}

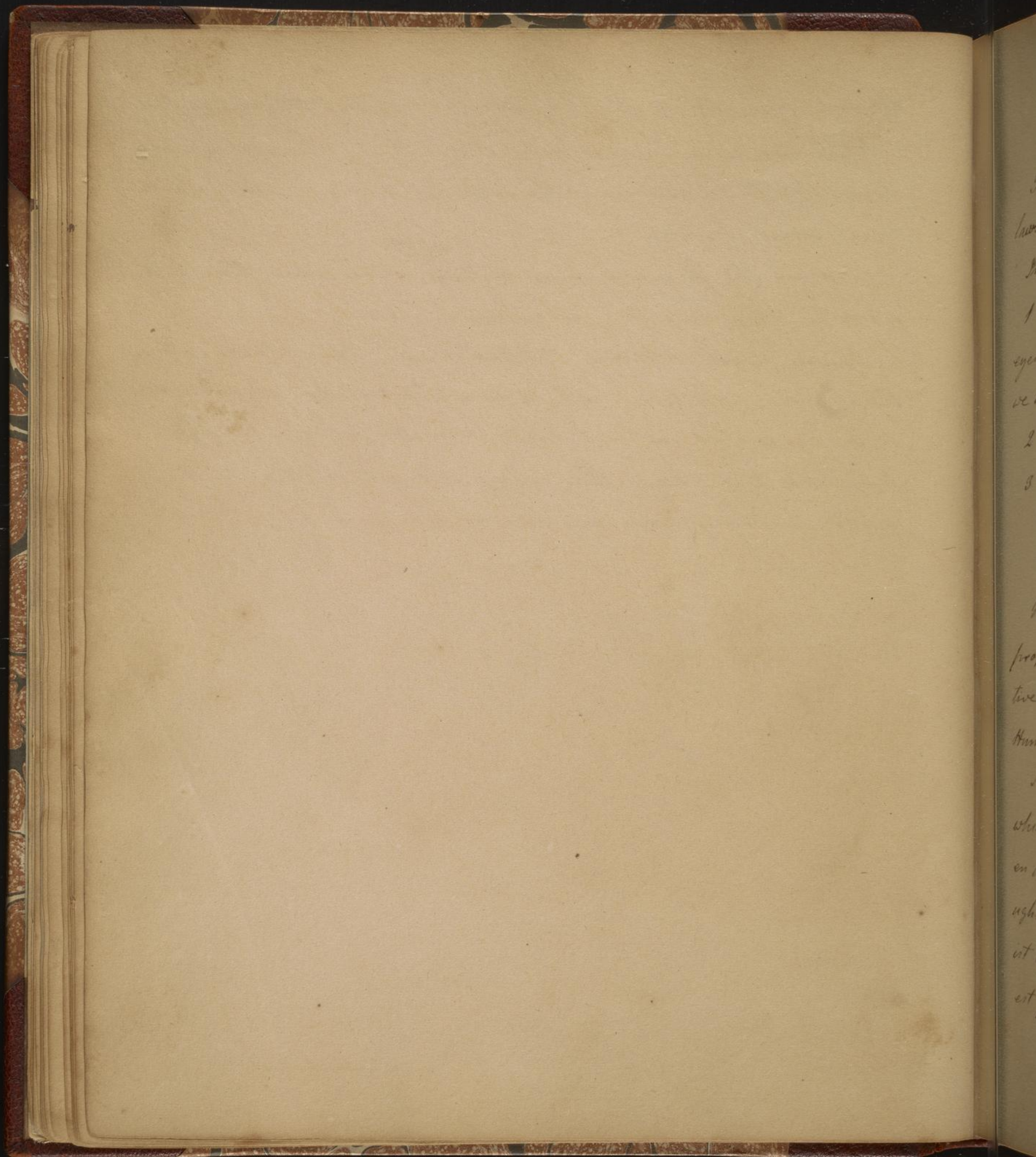


its force, circumstances affect its force much less than its frequency.

When the Radial artery cannot be felt, the temporal should be resorted to. In diseases of the head the temporal artery should by all means be felt.

Rubbing the fingers a rough surface, or immersing them for a while in warm water increases their sensibility.

Opium, Bleeding, Blisters, Vomits, Purges, Issues, Setons, Pediluvium, cold & hot bath, Aliments & Drinks should never be prescribed without first feeling the pulse. The knowledge that I have thus conveyed to you relative to the pulse is chiefly from my own observation.



Physiology

Physiology is that branch of medicine which treats of the laws of the human body in a state of health.

In treating of the human body I shall consider,

1 Its erect form; The shape of the face, the situation of the eyes & ears, the position of the body & limbs, all indicate that we were made to stand erect upon our feet.

2 The height of the body.

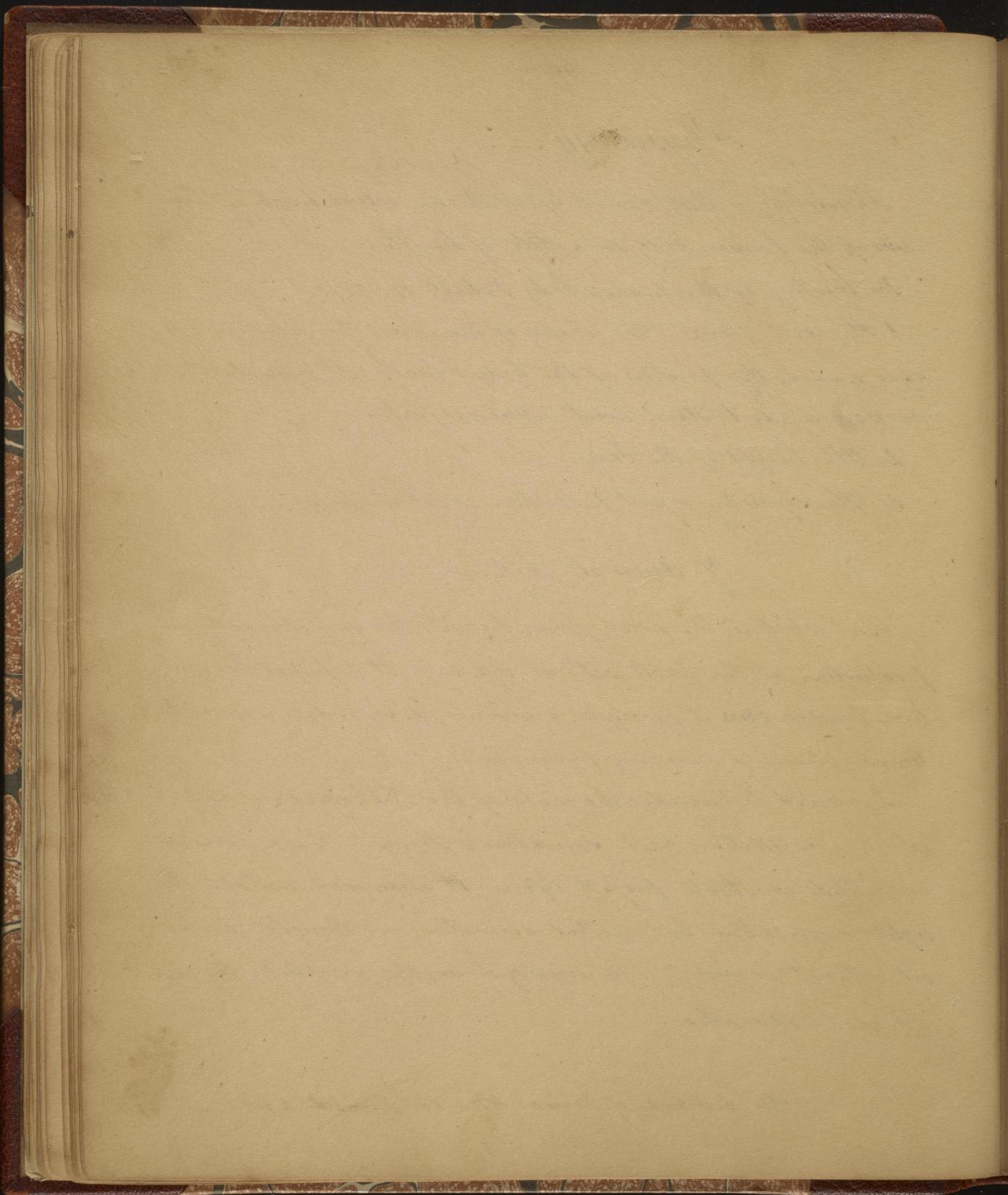
3 The symmetry & just proportion of all its parts.

Of Animal Life

But what is the erect form, height, the symmetry and just proportion of the parts without life? It possesses loco-motive powers, ~~can~~ it perceives, combines ideas, judges, reasons &c. Human life is a thinking principle.

I proceed to consider the cause of the Phenomena of Life, which are Motion, Heat, Sensation & Thought; these four when united constitute perfect life. It may exist without thought or sensation, but neither sensation nor thought can exist without motion. Animalized matter constitutes the highest grade of matter.

(For doctrine of Animal Life see printed Works.)



the

was

diff

was

sel

2. 1.

1

2

3.

skin

on

in

rese

H

S

6

wa

7

not

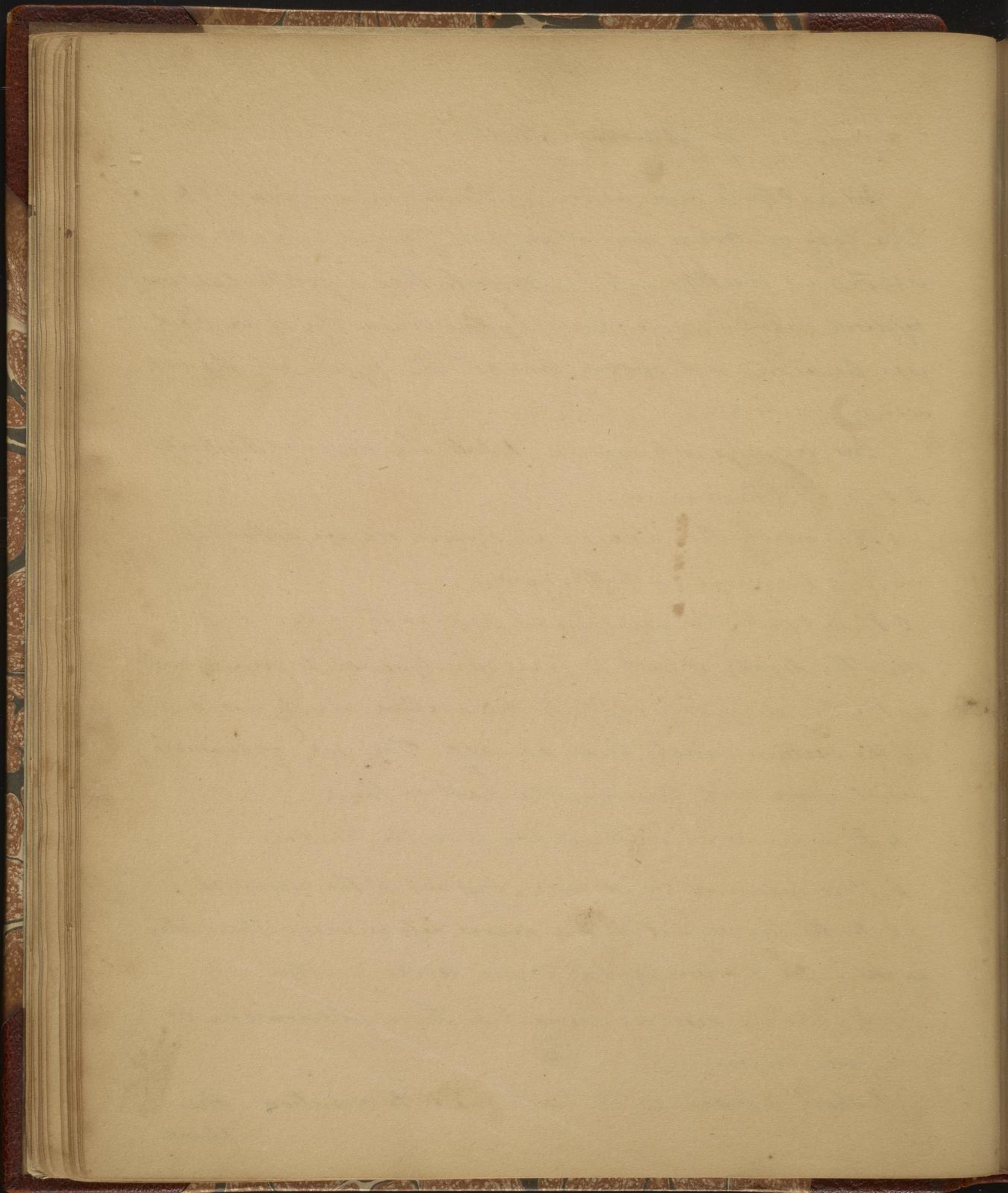
Of Animal Heat

Air as I have said before is the first principle of life. The body of Adam was when first formed, cold. No sooner was the air breathed into his Nostrils, than a gentle heat was diffused over the whole body; by this means the solid blood was liquified, and spread thro all the vessels all the vessels of the body.

Our business is to inquire, 1 Into the origin of this Heat.
2 Into its Phenomena.

- 1 It is nearly the same in all ages, in old age rather less,
- 2 It is the same in both sexes.
- 3 It is nearly the same in all parts of the body. On the skin the degree of heat is from ninety seven to ninety eight. on the tongue ninety eight. In the urethra ninety two. and in the rectum ninety three & a half. The ova of animals resist more cold than any other part of them.
- 4 It is the same in the solids, as in the fluids.
- 5 It is increased by exercise, passions of the mind &c.
- 6 Dr Hartley says it is one degree less in sleep than when awake. Dr Darwin says it is one degree greater.
- 7 In certain diseases several of these phenomena do not take place.

I shall proceed in the next place to mention the
supposed



supp

the

of

1

2

3

after

A

from

de

of

1

blo

2

the

blo

3

int

blo

4

the

supposed different causes of Animal Heat—

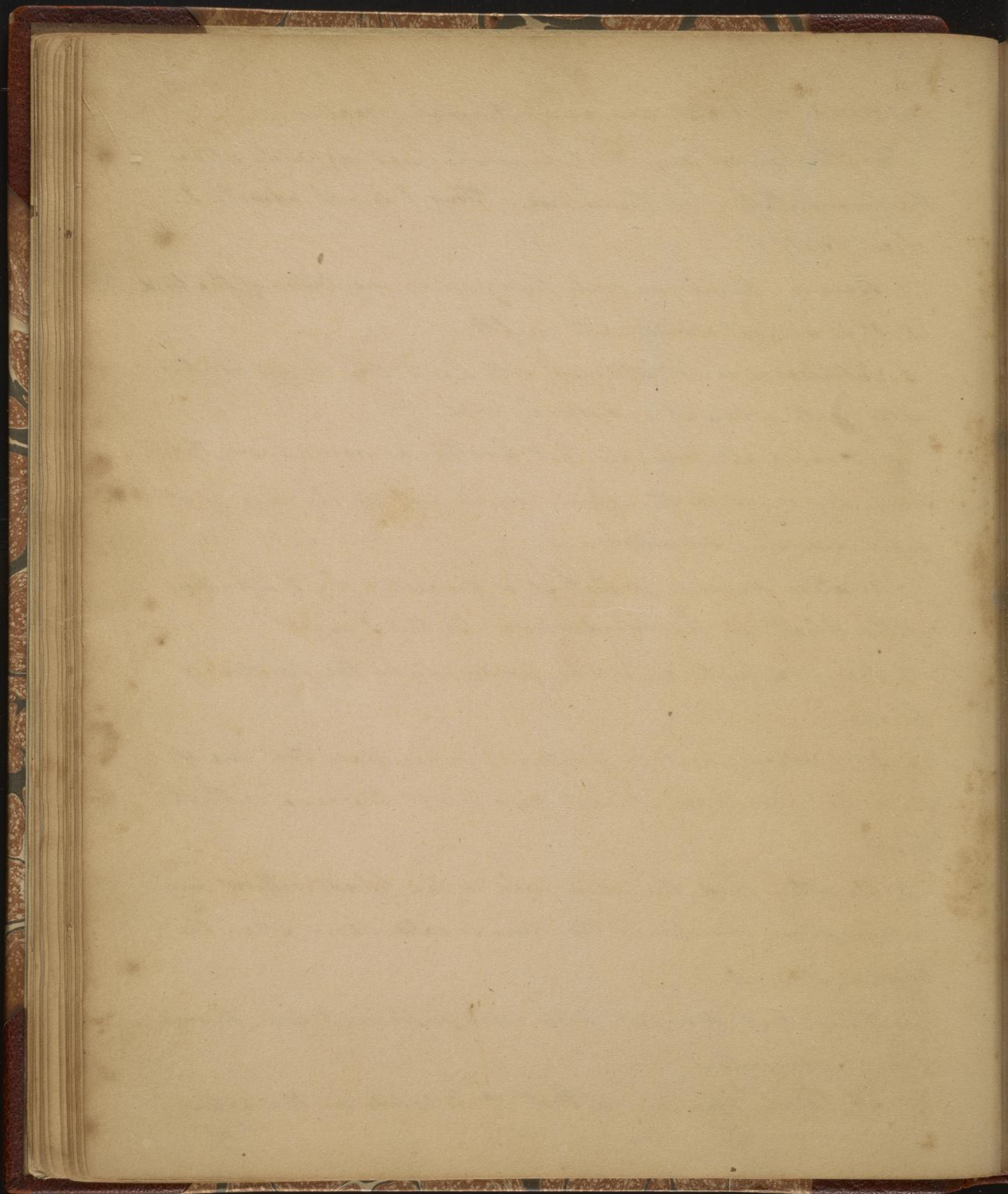
Dr Stephenson says that animal heat depends upon the fermentation of the blood. This I do not admit. I object to it,

- 1 Because there is no such thing as fermentation of the blood.
- 2 It is incompatible with health—
- 3 Putrefaction is not attended with heat. The body putrefies after death when it is entirely cold—
- 4 Because all animals that breathe as we do, have the same degree of heat; which would not be the case if it depended on fermentation—

Another opinion is that it is generated by the friction of the blood in the bloodvessels. To this I object.

- 1 Because heat cannot be produced by the friction of blood—
- 2 In producing heat by friction it is necessary that one of the bodies should be at rest. This is not the case with the blood—
- 3 We often find the skin cold & the blood without any interruption; sometimes the skin is ~~cold~~ warm when the blood is stopped—
- 4 The blood does not flow with sufficient force through the bloodvessels—

A third opinion is, that it depends on the action
of



of the particles of blood in the bloodvessels. This I do not admit -

Dr Cullen supposes the heat of the body ^{is owing} to its vital principle. This I also deny

All these theories have given way to Dr Black's, which is that animal heat is derived from a process similar to combustion, that is by the decomposition of oxygen gas in the lungs. According to this theory we all carry a fire place within us which is our lungs, the trachea is the chimney - Simple & beautiful as this theory is, there are some very strong objections to it.

The facts brought in support of this theory are,

1 Air is absolutely necessary to animal life, no animal can exist without it

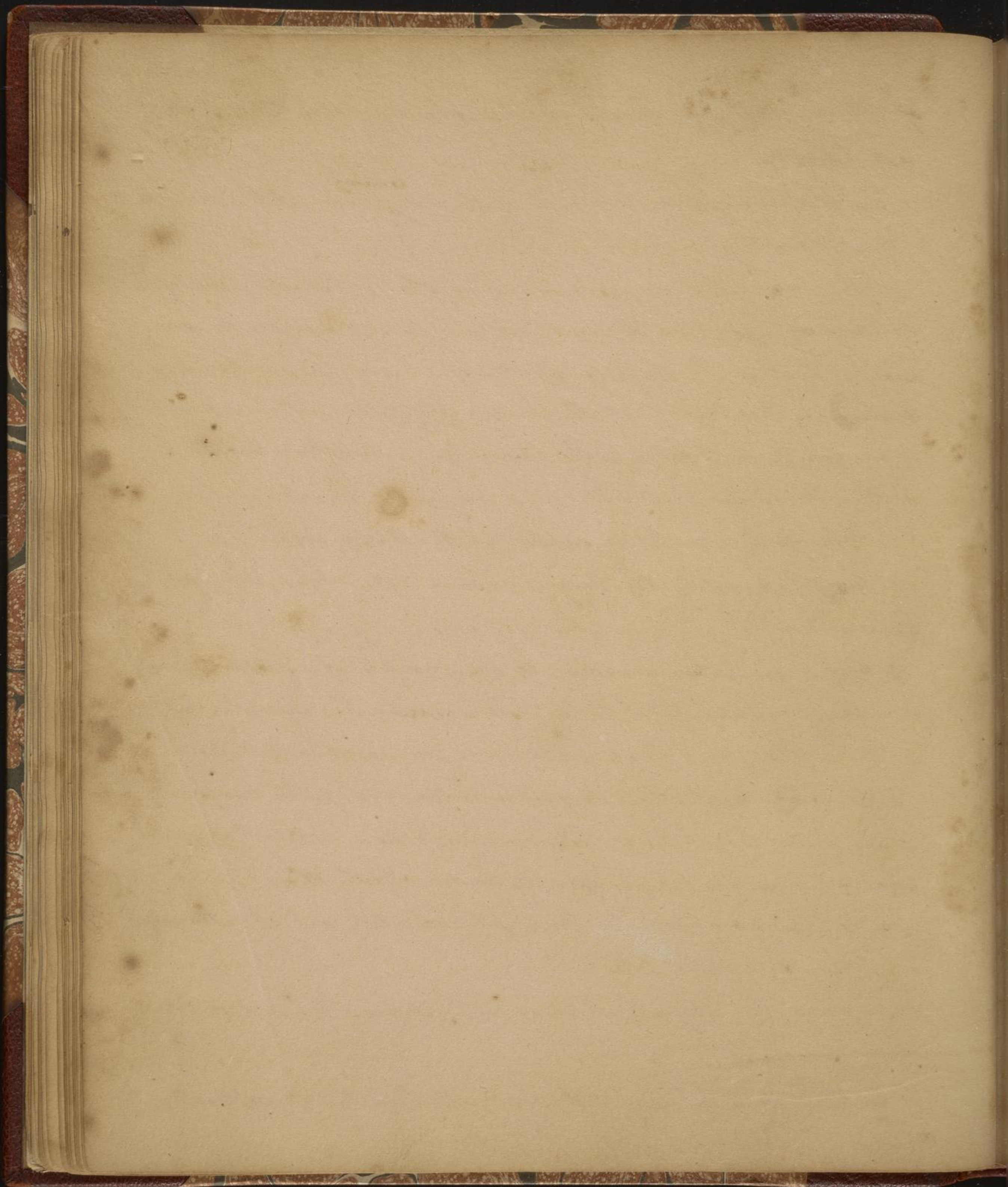
2 Heat is generated according to the quantity of air which is consumed; some say that a gallon is consumed in a minute, but it is more likely that three gallons are consumed in that time -

3 Animal heat is in proportion to the size of the lungs; - Birds have larger lungs in proportion to their bodies than man, and of course the heat is greater, being about 111°

4 The air we expire is true phlogisticated air, it extinguishes flame & is fatal to life

5 From the oxygen ^{gas} which is contained in the air we breathe being decomposed

6 The azotic air expired is warmer than the atmosphere



7

ana

1

rate

but

of

2

the

3

then

for

4

20

the

con

diff

5

mi

h

ma

ma

all

7 The arterial is warmer than the venous.

8 The effects of air from a warm body & from the lungs is analogous

I object to Dr Black's Theory.

1 Because animal heat remains the same when respiration is suspended, as in asphyxia, or when the pulse beats but 40 times in a minute, as is observed in the inhabitants of cold countries

2 I object to it from the action of the air on the blood out of the body

3 From the heat of the body being but one degree greater than near the lungs, which are supposed to be the laboratory for preparing it, than in the extremities.

4 The heat of the body is often partial or morbid. There is a morbid coldness or burning in the lungs. Just before death the body feels cold externally, but immediately after it becomes warm again this is owing to the heat of the viscera diffusing itself through the whole system.

5 Because heat is increased by the passions of the mind.

All bodies contain heat, impressions or friction produce it, rubbing wood or beating iron will produce it. Animalized matter contains it & yields it on the application of stimuli. All parts of the body are under the influence of stimuli, but

but
tion
appe
and
dim
of
river
tone
nice
frie
cise
their
ging
cold
over
com
Prie
of m
exce
temp
heat
exist
be a
Tore

but air is the principle one; it is admitted that a portion of air is decomposed in the lungs in breathing, but it appears to be expired in the form of carbonic acid gas, and acts only as a stimulus. Oxygen is derived from our aliments as well as from the air taken into our lungs.

The same stimuli which produce animal life, produce animal heat. Instead of admitting one of the beforementioned theories to be correct, I suppose that all of them are necessary to produce animal heat, combustion, percussion, friction, light, heat, sound, the passions, food, drink, exercise, all contribute to the production of heat by means of their stimuli. By abstracting stimuli by bleeding, purging, low diet &c we lessen the heat of the body. In the cold stage of an intermittent fever the heat is increased near the brain. This doctrine of animal heat puts it completely under the controul of Physicians.

Artificial ~~heat~~ ~~xxx~~ stimuli in winter supply the place of natural; and in summer evaporation carries off the excess of heat ~~& thus~~ & thus preserves in the body an equal temperature. The same reason probably exists for the heat of the living body never exceeding a certain point, that exists for water never exceeding $21\frac{1}{2}$ deg. one would probably be as certainly destroyed by an increase of heat as the other. Trees are two degrees warmer in summer than the atmosphere

ere

ore
cel
In
reci
Durin
most
times
insu
rest
othe
disca
deg
expe
ratio
tim
Hea
the b
Rea
some
may
excep
1 d
bood

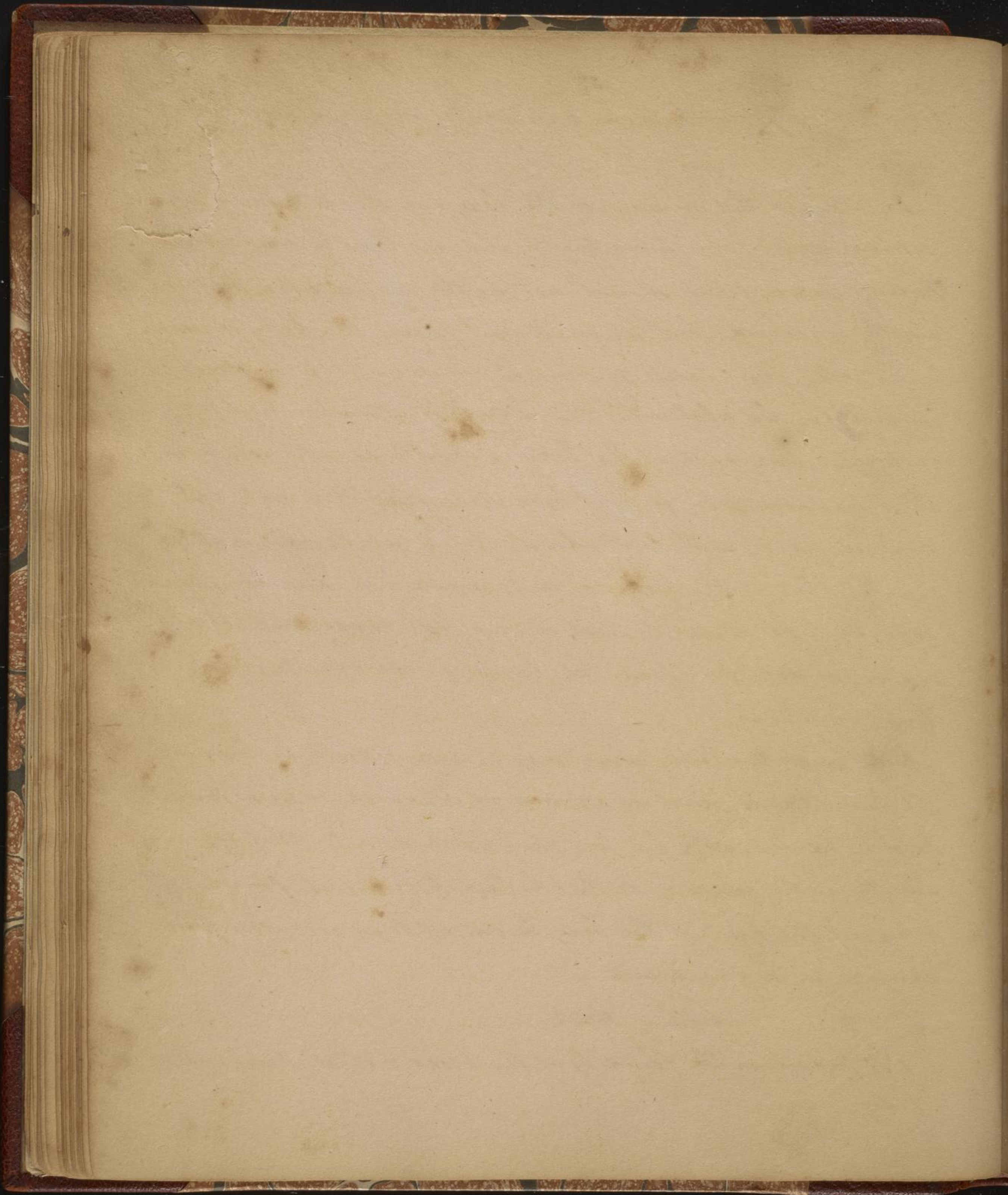
ere which surrounds them & in winter they are two degrees colder

In old age the motions of the body are slower, & the mind receives impressions more tardily and the body becomes colder. During fevers fresh stimuli act on the system & the heat is mostly increased; but in malignant fevers the body is sometimes cold from excess of stimuli, by which it is rendered insensible; by abstracting this excess of stimulus, heat is restored. One part of the body is sometimes cold while another is warm, why is heat here stationary? it is not, but diseased parts will not admit it. When the air is at ~~212~~³⁰ deg. the heat of the body remains unchanged, and even when exposed to 210 or 212 its heat is very little increased; evaporation or depletion from the lungs preserves its equal temperature.

Heat uncontrollable, sometimes occasions death by burning the body. I have heard of a woman in New York who was found dead in her bed, with her legs very much burnt. That this is sometimes the cause of death I believe to be a fact, for why may not the heat of the body be subject to an error loci from excess or as well as disease.

Uses of Heat—

1 It preserves the fluidity of the blood & other juices of the body



2 H

for

3 H

the

H

5

the

the

habit

the

wound

capt

the

the

some

a day

of

felt

his

excite

being

in

2 It keeps up by its stimulus, the motions of the different parts

3 It gives sensibility to the nerves, and irritability to the Muscles

4 It renders the senses more acute -

5 It promotes the solution of food in the stomach -

Of Respiration

Respiration consists of two parts, inspiration & expiration. As I have said before respiration is at first involuntary, by habit it becomes partly voluntary & partly involuntary -

There is little sensibility or excitability in the lungs. In wounds & deep seated abscesses in them, there is no pain except when the pleura is inflamed. Experiments prove the want of sensibility in them in a sound ^{natural} state

Respiration varies in frequency in different subjects. In some animals it does not amount to more than 20 times in a day. The lungs are the bellows that fan the flame of life

The causes of respiration are 1 The uneasiness that is felt at breast after every expiration, and the stimulus of the air and distention of the lungs in inspiration. 2 The stimulus excited in the lungs from the dephlogisticated air -

Oxygen is imparted to the blood during respiration, young animals confined in oxygen gas live longer than old ones, and the
pains

pains
in the
A go
it give
five

1 3
the
to all
motion

2 3
And
3 3

4 3
5 3
are on

6 3
the
7 3

8 3
9 3
10 3

11 3
an ex
12 3

pains of death in animals confined in it appear to be less than in atmospheric air

A great advantage attends the slowness with which we breathe it gives time for the azotic gas to rise ~~out of the~~ which we expire to rise out of the way of a second inspiration.

Uses of Respiration.

1 To admit air into the lungs: it gives the first impulse of ^{life} to all the children that are brought into the world. Heat, motion & thought proceed from it.

2 It serves to convey moisture into the body, and gives the blood its red colour.

3 It is a source of heat to the body.

4 It conveys off offensive matter from the lungs.

5 It serves to propel the blood through those vessels that are not acted on by the Heart, as in the liver & spleen.

6 It serves to keep up a steady action in different parts of the body.

7 By it we receive the impression of odours.

8 It assists the action of the Uterus in parturition.

9 It assists in changing the aliment into blood.

10 It serves to promote secretion.

11 It serves to convey a certain quantity of air into the blood. an excess of air induces disease & sometimes death.

12 It enable an Infant to perform the operation of sucking.

19 Laid
In
more
the
The
junction
Muc
motion
force
force
Diaph
Yac
quid
Pant
In
other
ms
In
He
ed by
Res
The
chea

13 Lastly, it assists in forming the human voice.

In respiration the female sex move the pectoral muscles more than the male; and males move the abdominal muscles more than females.

There are certain involuntary actions connected with respiration, as Coughing, Sneezing, Yawning, Laughter & Crying.

Mucus irritating the trachea or lungs, produces that convulsive motion called Coughing, by which means the mucus is discharged.

Sneezing is caused chiefly by irritation of the Pituitary membrane, which sympathetically causes a convulsive motion of the Diaphragm; its effects are nearly the same as coughing.

Yawning arises from a sense of lassitude occasioned by too languid a circulation. It serves to accelerate the motion of the blood.

Panting urges the blood forward when it is likely to stagnate.

In Laughter the action of the ^{muscles of respiration} ~~Diaphragm~~ is much quicker than at other times; it is a succession of very short & rapid inspirations & expirations.

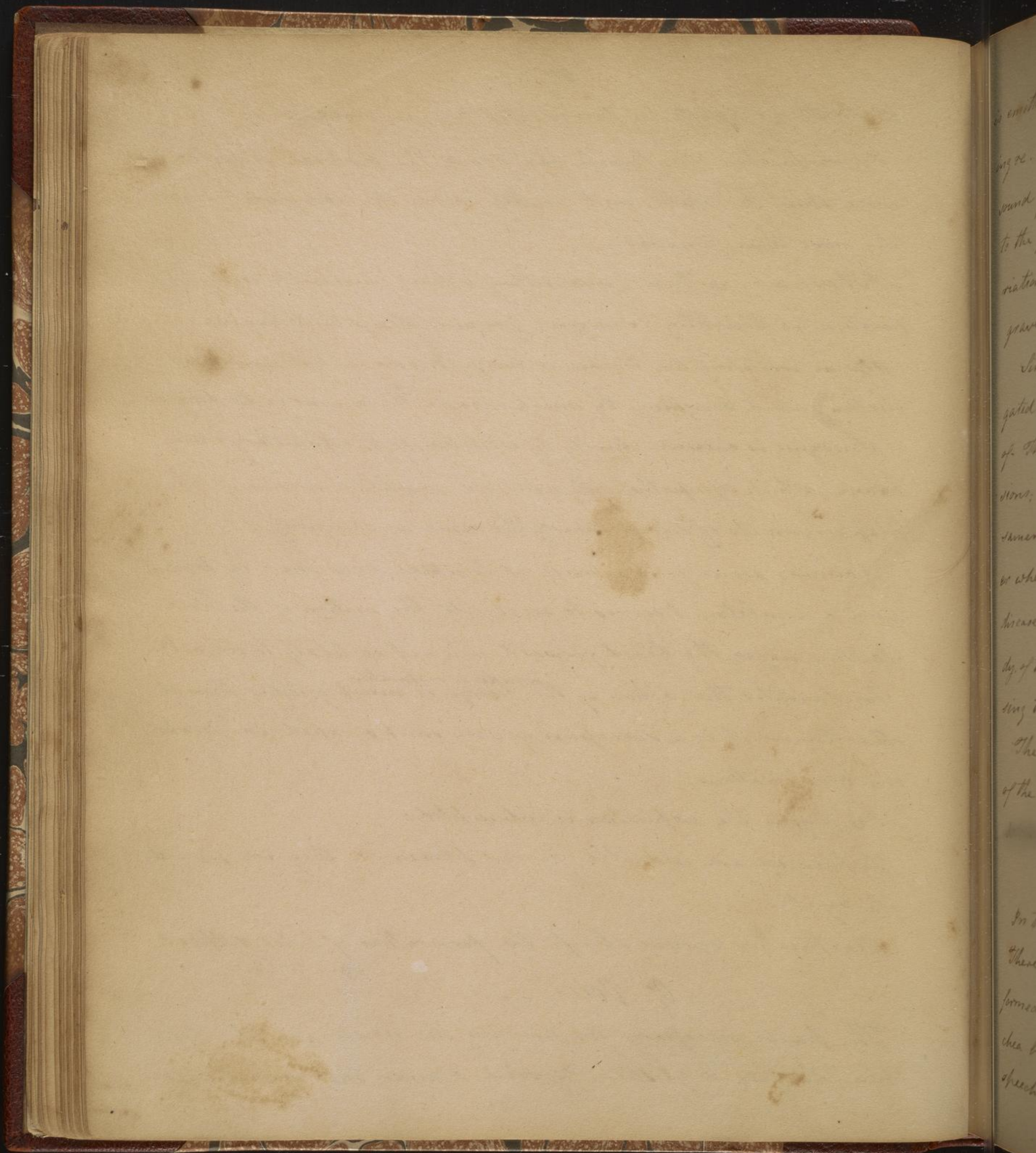
In Crying the expiration is interrupted.

No pain we are indebted for our pleasures; they are preceded by it.

Respiration serves also for the formation of Voice & Speech.

Of Voice.

The parts necessary for forming the voice are the Trachea, Larynx ^{Vocal} & Glottis. By voice I mean that sound that _{is}



is emitted from the mouth either in reading, talking, singing, hallowing &c. I believe the voice is formed on the same principles as sound from a wind instrument. The uvula contributes much to the formation of voice. Variety in tones arises from the variations of the glottis. Sounds are divided into acute and grave, weak and strong.

Singing is a protraction of the voice; the trachea is elongated or shortened according to the different tones made use of. The voice changes at puberty; it is varied by the passions; it is quick & strong in anger, soft in love &c. There is a sameness of voice in persons of the same country. It is stronger when standing than when sitting. It is sometimes improved by disease, especially in the delirium of a fever. I knew a young lady, of the society of friends, who in the delirium of a fever would sing the most delightfully of any person I ever heard.

The use of the Thyroid gland is to prevent ~~the~~ excess of the voice. See p. 185. of this vol.

Of Speech —

In the exercise of speech man stands alone preeminent. There can be no speech without voluntary respiration. It is formed by the ^{larynx} trachea & larynx down to the glottis. If the trachea be cut below the glottis there will be neither voice nor speech, if above it there will be no speech.

Children

Child
but
twins
they
fond
be
she
The
more
In
cry
2
very
3
inhal
4
the
the
hence
Play
grow
who
infan

Children generally begin to talk about the age of 15 or 18 months, but some learn to speak very slowly. I knew a woman who had twins, neither of whom spoke ~~talk~~ till they were 8 years of age: they could make each other understand by signs; and were very fond of each other. I was consulted in what manner they should be taught to speak. I advised their mother to separate them which she did, and they very soon learned to talk.

The parts used in speech are the, Larynx, Uvula, Glottis, tongue, mouth, teeth & nose.

1 In the Infant the Larynx & Glottis are first set in motion by crying, this assists respiration, as well as prepares for speech.

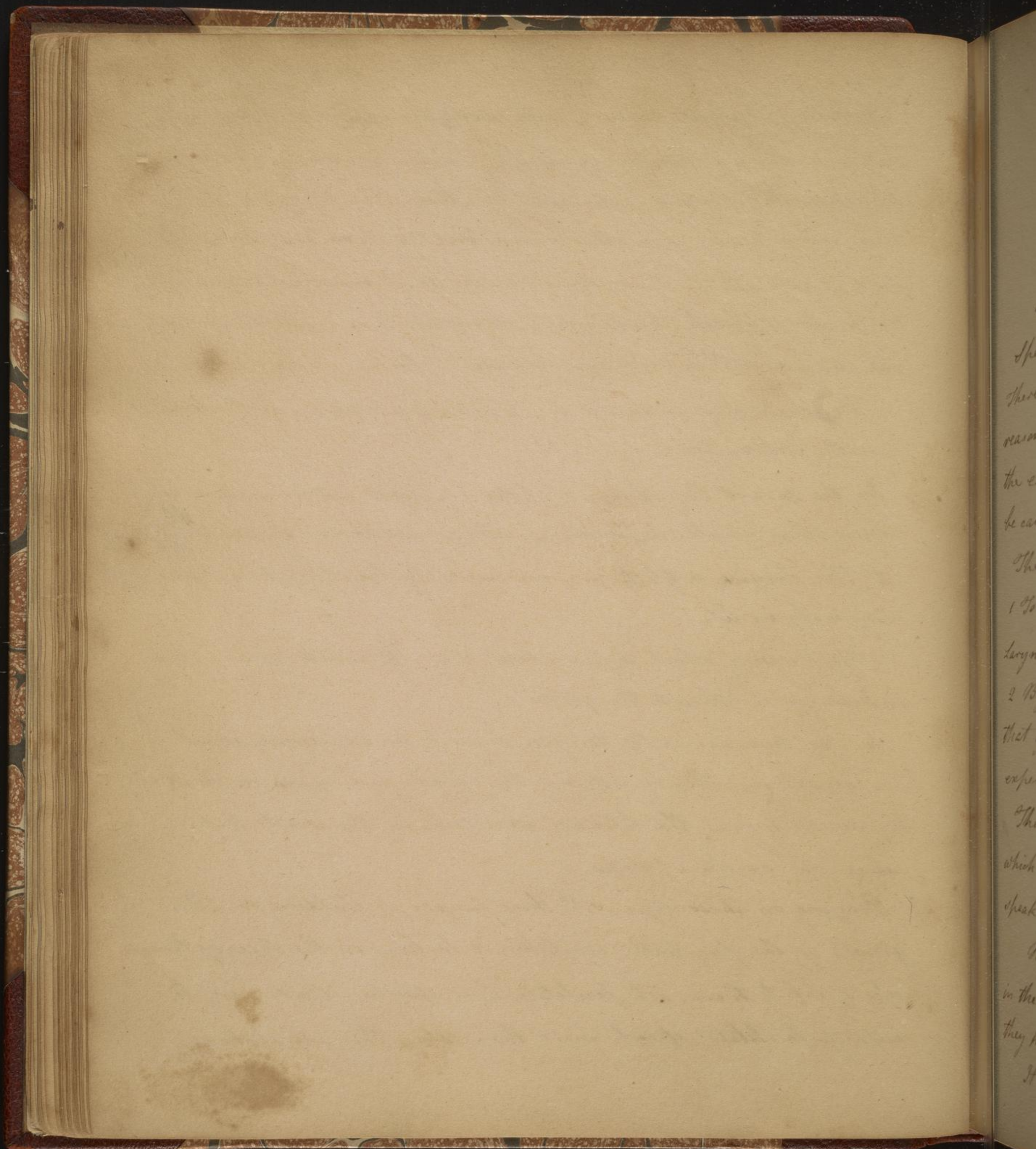
2 The Larynx & Glottis are exercised by laughing; this begins very early in life.

3 By Crowing, which begins about the fifth month, it is a slow inhaling of air through the glottis.

4 The muscles of the tongue begin to be exercised about the eighth month, by uttering the words dad, mama &c. about the ninth month the lips are exercised in the word pap, - hence the origin of Papa -

Playing on their lips with their fingers, as children do. The growth of the fore teeth, imitation & looking in the faces of those who speak to them, all facilitate their speech. - Words sung to infants facilitate speech more than when they are spoken.

Distinction



She
there
reason
the
be
The
1st
Larynx
2nd
that
expe
The
which
speaks
in the
they
It

Distinctions of the Voice into,

a o Guttural	}	Sounds
b p Labial		
c s Dental		
l r Lingual		
m n Nasal		

Speech has been taught to those who are called dumb, there is no defect in the organs of speech in those people, the reason that they do not speak is because they cannot hear; the ear is the defective part. They would more properly be called silent people. Speech was originally given to man.

The methods of teaching the dumb to speak are,

1 To supple the Larynx, and teach them to expel air. The Larynx is suppled by preping & rubbing it.

2 By making them move their lips in the same manner that you do when you speak to them, and desire them to expel air at the same time.

There are no such things as Ventriloquists. The way in which those that go by that name practice their deceptions, is by speaking during inspiration, instead of expiration.

By speech man is ennobled above all other creatures in the world; brutes are stationary in their knowledge, because they have no speech.

It is the medium by which we convey our ideas to each other

other

of

God,

and

the

stated

In

1 In

Long

2

8

4

The

the

contr

trick

form

once

rick

left

pages

other. And is far above all others of which we can conceive.

It is one of the means by which we are to serve & glorify God, nay we are commanded to serve him with our hearts and voices.

Speech was no doubt given to Adam as soon as he was created, and in one language only.

Of the Circulation of the Blood.

In treating of the circulation of the blood I shall enquire,

1 Into the course of the blood after it has passed through the lungs.

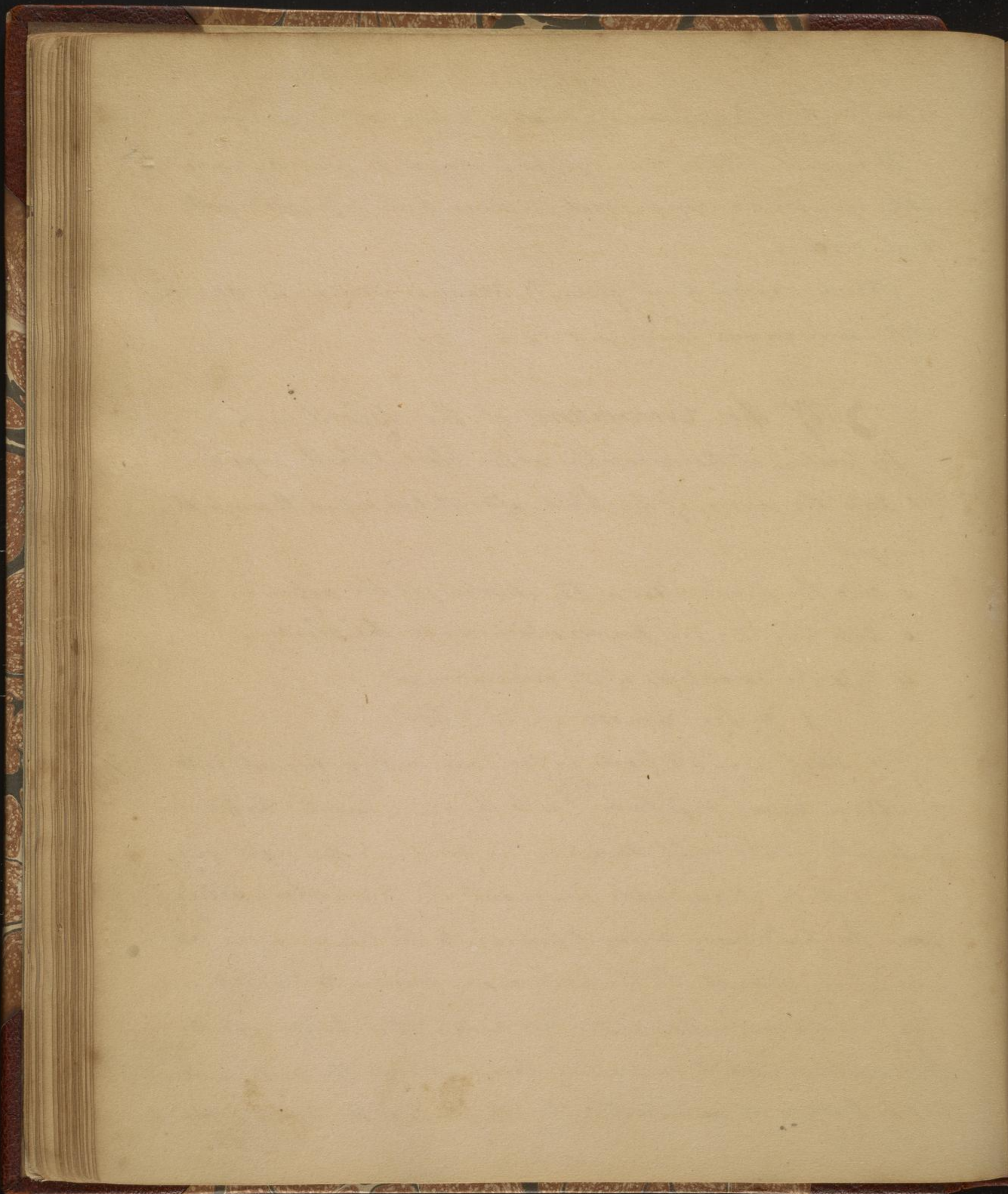
2 Into the peculiarities of the structure of the vessels.

3 Into What are the powers which move the blood.

4 Into the advantages of its circulation.

1 of the Course of the Blood.

The blood from all parts of the body being returned into the Vena Cava, pass from it into the right Auricle; by the contraction of the right Auricle, it is forced into the right ventricle, and by its contractile power into the pulmonary Artery; from the pulmonary Artery it passes into the lungs, from whence it is returned by the pulmonary veins into the left auricle; by the contraction of the left Auricle it is thrust into the left ventricle, which contracting throws it into the Aorta, and passes through its ramifications to all parts of the body: from
the



the on

ient

this co

about

every e

uncles

The a

2

And

1 H

Left in

2 H

3 H

the cor

4 H

5 H

6 H

7 H

8 H

animal

some b

9 H

71

the small branches of the Aorta, it is taken up by the incipient veins and by them returned to the Venæ Cavae again: and this circulation is incessantly reiterated.

About two ounces of blood are discharged from the heart at every contraction. It is remarkable that the contractions of the auricles & ventricles are synchronous with each other.

The lymphatics act as a handmaid to the bloodvessels.

2 Of the peculiarities in the Structure of the Heart and Bloodvessels, and their courses.

1 Of the Heart.

1 It has an oblique position in the Thorax, inclining to the left side.

2 It has an external covering called Pericardium.

3 The cardiac nerves are accompanied by an artery called the coronary artery.

4 It is a hollow muscle, divided into different cavities.

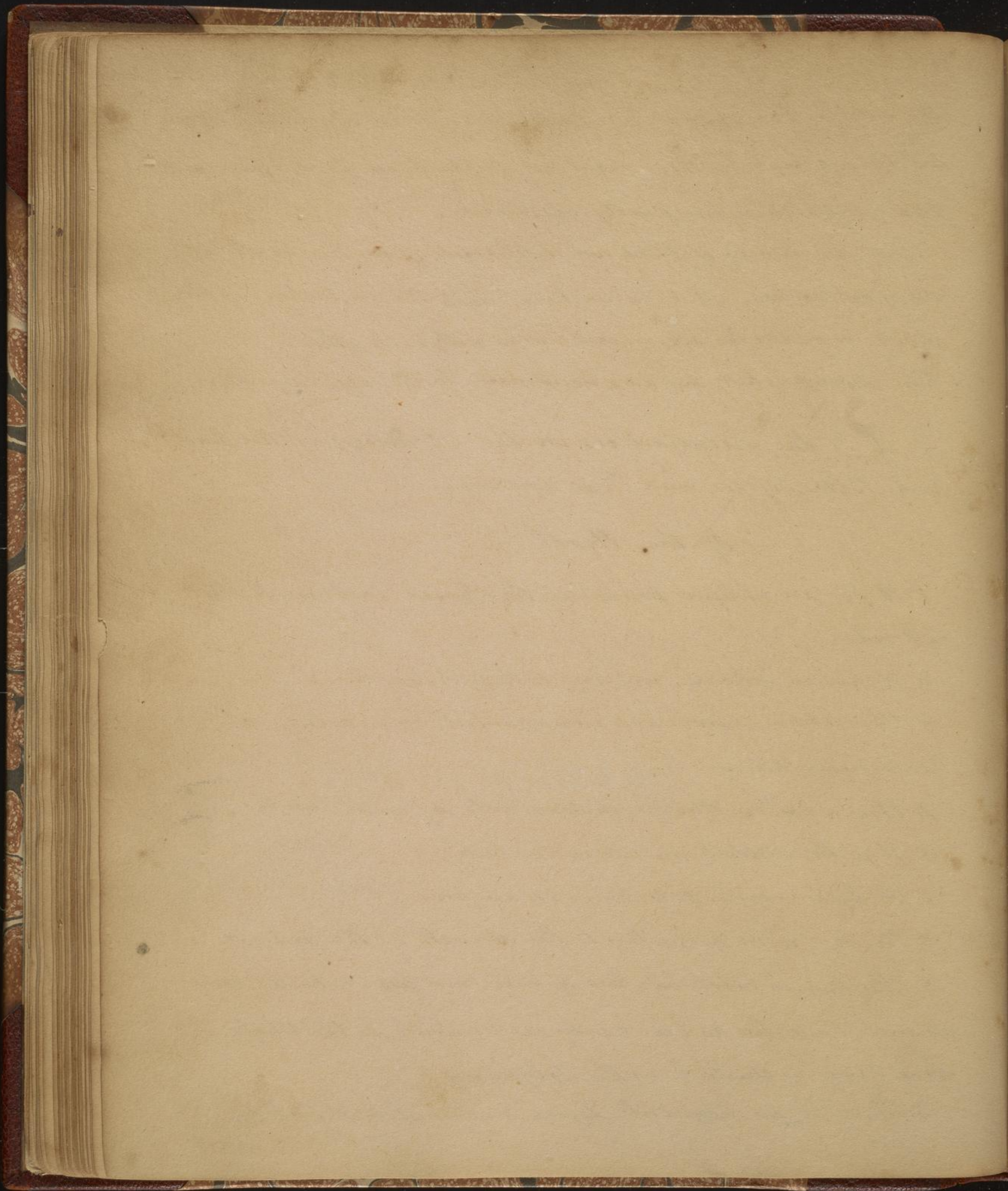
5 It is the reddest muscle in the body.

6 It beats nearly 5000 times in an hour.

7 Its size is in proportion to the strength of the animal.

8 The human heart has two auricles and two ventricles; some animals have two auricles & only one ventricle, as the Whale - some have no ventricle as the Polypus.

9 There is an exquisite degree of stimulability in the Heart



Heart
beat
11
extreme
irritab
in y
The

1
honour
2
3
the con
each
4
propo
wher
them a
it beg
5
muscle
the po
they a

Heart, as proved by many experiments. The right ^{ventricle} auricle beats longer than the left & is more irritable -

10 The cavities of the heart have more irritability than its external part. Its sensibility is by no means equal to its irritability: the latter property exists in a greater degree in young than in old people -

The left ventricle is larger in Americans than in Europeans.

2 of the Arteries -

1 They are composed of three coats, viz. Muscular, membranous and nervous

2 All the arteries have nerves, bloodvessels & lymphatics -

3 There is a great deal of mechanical elasticity in them. The contractions of the heart & arteries are synchronous with each other -

4 They are stronger in proportion to their diameters, and in proportion to their being near the heart; they are the strongest where they are curved. They send off their branches from them at acute angles. When ossification takes place in them it begins internally

5 The arteries anastomose. The large ones are covered with muscles & fat. They are stronger than the veins. They also have the power of sending off branches to newly formed parts - They are always circular when filled with blood -

1
active
fibres
2
3
the a
4
5
the a
6
is more
reaction
appea
1
irritated
by a
or the
to act
In
heard
some
where

3 Of the Veins

1 They are composed of the same number of coats as the arteries, but they are thinner, not so dense & less elastic. Their fibres run longitudinally hence they have no pulsation.

2 They are

3 In proportion to their density they resist more pressure than the arteries

4 Their branches run more superficially under the skin.

5 Most of the veins have valves; the veins abound most in the extremities

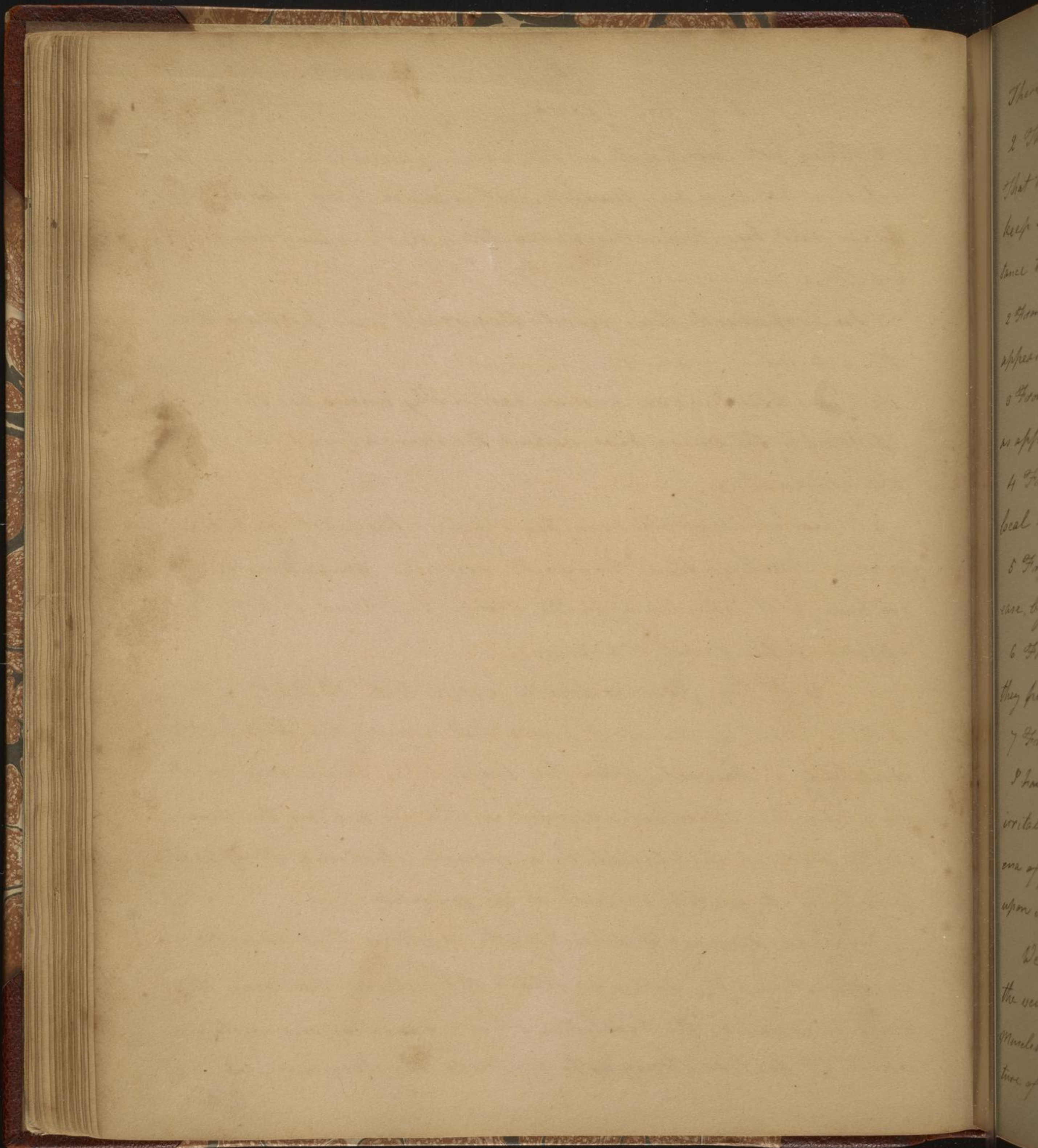
6 There are a greater number of veins than arteries & there is more blood in them than in the arteries. Congestions & obstructions first take place in the veins, but their effects first appear in the heart & arteries.

3 Of the powers which move the Blood

1 The heart is the first power that moves the blood. Its irritability is derived from the brain. The blood acts on it by a specific stimulus; as much as the air acts on the lungs, or the food on the stomach by a specific stimulus. It appears to act by its quality as well as its quantity

In some diseases the heart beats so strong that may be heard all over the room in which the patient lies, may it sometimes raises the bedclothes. I have heard of one instance where it beat so strong as to protrude the sternum.

There



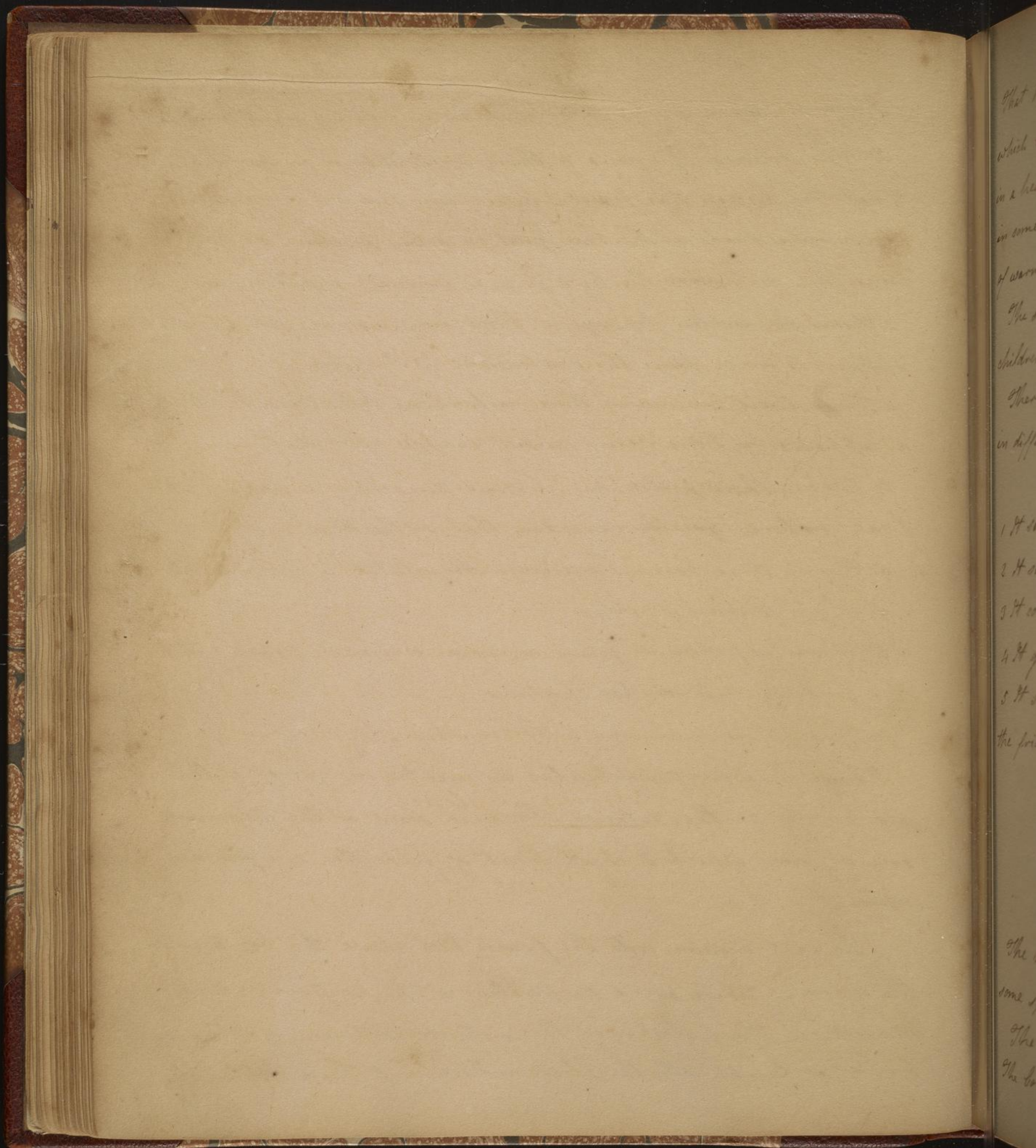
There are upward of 25 lb of blood in an ordinary sized man.

- 2 The Arteries, by means of their irritability or contractility. That they possess this power I infer, from, our not being able to keep some parts of the body quiet in certain positions, as for instance the foot, when the leg is placed across the opposite knee.
- 3 From the sudden stoppage of blood in a divided artery, which appears to arise from the contraction of its fibres.
- 4 From their continuing their contractions later than the Heart, as appears by their being found empty after death.
- 5 From their pulsations in some diseases of a partial or local nature, greatly exceeding that of the Heart.
- 6 From their being sometimes stimulated to action in disease, by a gaseous fluid.
- 7 From experiments made on living animals, proving that they pulsate between two ligatures.
- 8 From their continuing active in sleep.

I have been more particular in mentioning proofs of the irritability of the arteries, because some of the phenomena of fever which I shall treat of hereafter, are founded upon it.

We next inquire into the powers that move the blood in the veins. These are 1 Respiration. 2 The pressure of the Muscles. 3 The pulsation of the contiguous Arteries. 4 The mixture of Lymph with the blood in them. 5 Their irritability.

That



That they possess irritability I infer 1 From the force with which blood is thrown from them in fever, being greater than in a healthy state 2 From the sudden closing of the orifice in some persons, which may be opened again by the application of warm water to the part. —

The stagnation and reflux of the blood are the causes why children start & throw their arms and legs in their sleep.

There are different degrees of velocity of the blood in the veins in different parts of the body: it is slowest in the brain —

The uses of the Circulation of the Blood —

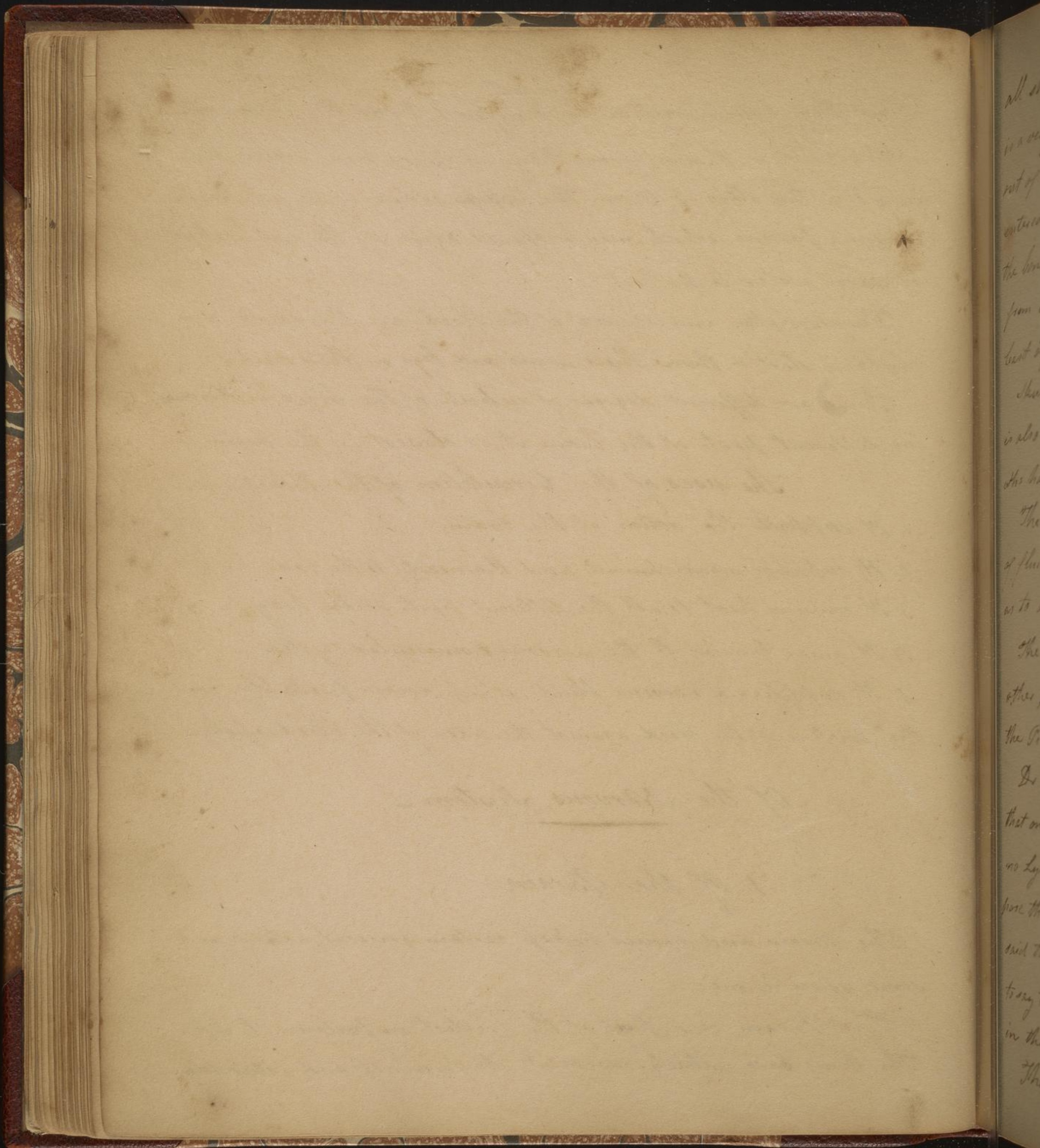
- 1 It supports the action of the brain.
- 2 It supplies nourishment and Humidity to the body.
- 3 It conveys heat to all the different parts of the body.
- 4 It gives tension to the nervous & muscular systems.
- 5 It supplies a nervous fluid, which arises probably from the friction of the blood against the sides of the bloodvessels.

Of the Nervous System —

1 Of the Brain

The Brain and nerves possess certain general actions, and some specific ones.

The Brain is a part of the greatest importance to life. The bony case which covers it, its firmness and rotundity,
 all



all shew the wisdom of Him who formed it. Its rotundity is a very great safeguard to the brain. I once extracted a bullet out of a soldiers head after the battle of Trenton, which had entered on the right side of the head and penetrated as far as the bone, then went round under the skin to the opposite side, from whence I extracted it; the cranium itself was not in the least injured. The ball was considerably flattened.

Skulls are of different forms in different nations; and there is also a great variety in skulls of the same nation. A person who has a projecting forehead is said to have an extensive mind.

The brain is composed of vessels which convey a serous kind of fluid or lymph; but they become so much dilated by disease as to admit red blood.

The arteries of the brain possess less elasticity than those of other parts of the body: they are distributed chiefly upon the Pia Mater.

Dr Haller says that one fifth of the blood, and Dr Monro that one tenth is sent to the brain. It is said that there are no Lymphatics in the brain, but there is some reason to suppose that it is not destitute of them. ~~All the~~ The Nerves are said to originate in the brain; but it would be more proper to say that they originate in the extremities, and terminate in the brain.

The brain has three kinds of motion. 1 That which arises
from

from
just
2 In
during
the can
to make
I H
The
been to
The
than
tion to
prospe
the bo
All
1 For
2 For
ding it
3 For
Four
seeing
Desca
Dr Will
suppo

from the pulsation of the arteries. This is denied by some ~~Physiologists~~
 Physiologists

2 In every act of respiration the brain is moved; it rises during expiration & falls during inspiration. — Morgagni relates the case of a man whose face became alternately pale and of its natural colour during respiration

3 It has a motion analogous to muscular contraction.

The Cerebrum has but little sensibility; a red hot iron has been thrust thro it without inducing pain.

The size of the brain is proportionally greater in man ~~excess~~ than other animals: it is twenty four times greater in proportion to his size, than that of an ox. Intellect seems to be in proportion to the size of the brain compared with the size of the body.

All sensation is seated in the brain, this I infer,

1 From its being suspended by ligatures round the nerves

2 From accidents happening to the vertebra of the neck suspending it

3 From diseases of the brain suspending it.

Four of the five senses are seated in the brain, viz. hearing, seeing, smelling & taste. — It is also the seat of the mind.

Descartes supposed the mind to be seated in the Pineal Gland.

Dr Willis, that it is seated in the Corpora Striata. — Dr Gall supposes it to fill two distinct organs, and that the right side

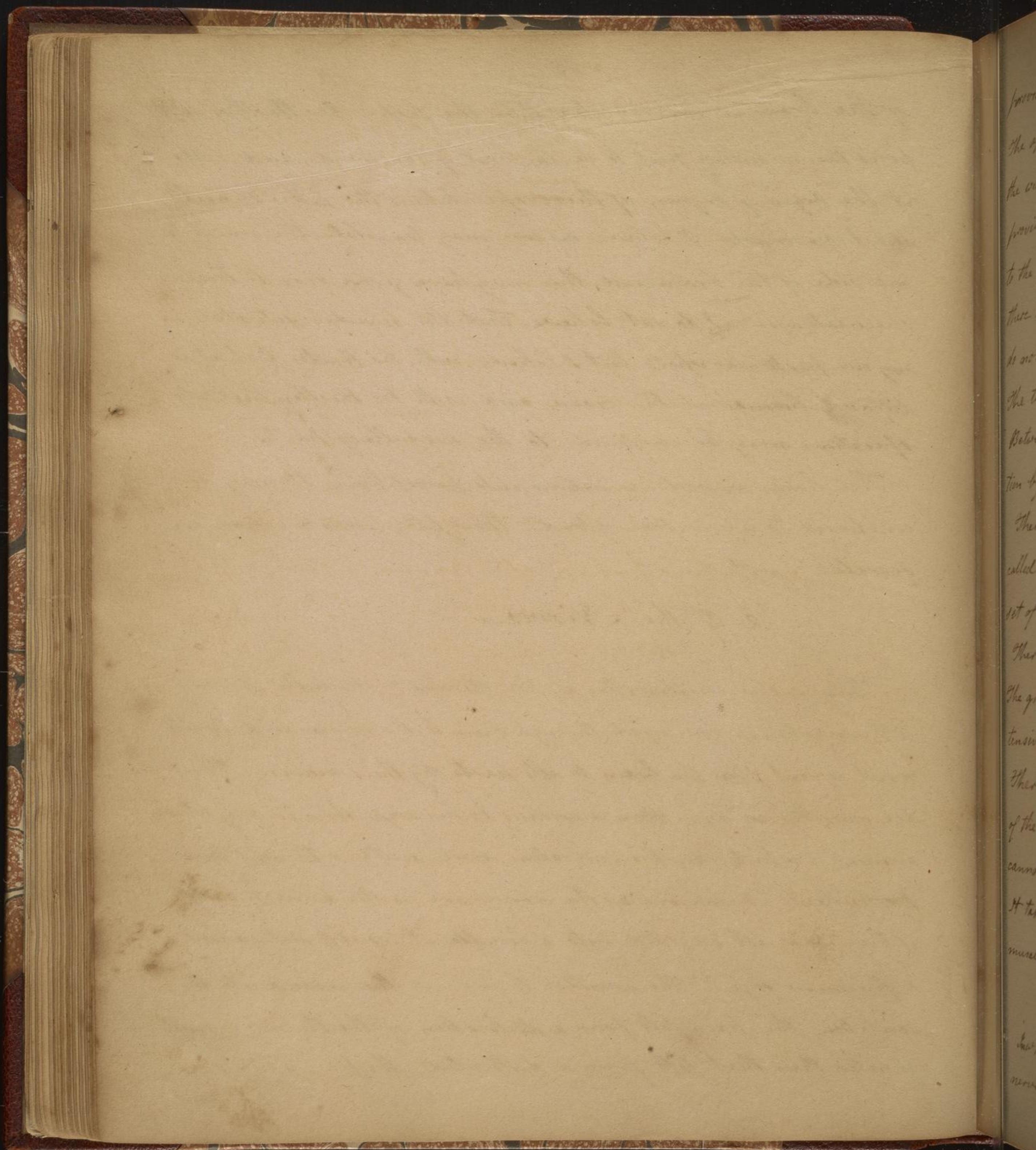
*perceptions into Ideas, Ideas into Thoughts.

of the brain is more excited than the left. Dr Hartley supposes the medullary part to be the seat of the mind; and calls it the organ of organs. Of these speculations the latter seems the most reasonable. I believe disease may translate the mind to one side of the brain, and this may have given rise to those speculations. I do not believe that the mind is situated in any one particular spot; but I believe with Dr Haller that it is diffused throughout the brain; and with Dr Hartley that its operations may be confined to the medullary part.

The brain converts sensations into perceptions.^x It may be compared to a secretory gland. Thoughts, words & actions are secreted by it.

2 of the Nerves.

They are a continuation of the Brain & Medulla Spinalis. All sensation is conveyed through them to the brain, and excitement is sent from the brain to all parts by their means. They are smaller in man ~~than~~ according to his size than in any other animal, which renders sensation more acute & thought more prominent. Numerous as the nerves are in the human body, if they were all collected into a bundle it would not exceed a finger in size. The smaller the nerves the more acute the sensation: the pain felt from a dislocation of the thumb is much greater than that felt from a dislocated thigh. They are provided



provided with ganglia, supposed by Dr. Monro to be little brains. The opinion that ganglia are intended to prevent the action of the will over the heart &c ~~seems~~ ^{seems} to be correct, and a very wise provision. The sensibility of a part is generally in proportion to the quantity of nerves ~~sent~~ with which it is supplied. yet there are some exceptions, as in the heart, stomach, spleen &c which do not possess much sensibility tho. they have many nerves. The testicles have not many and yet are extremely sensible. Between all the viscera, there is an intercommunication of sensation by means of the nerves.

There is a set of nerves formed for the touch, taste &c these are called sensual, the others are called common. There is also a set of nerves for sensation and motion.

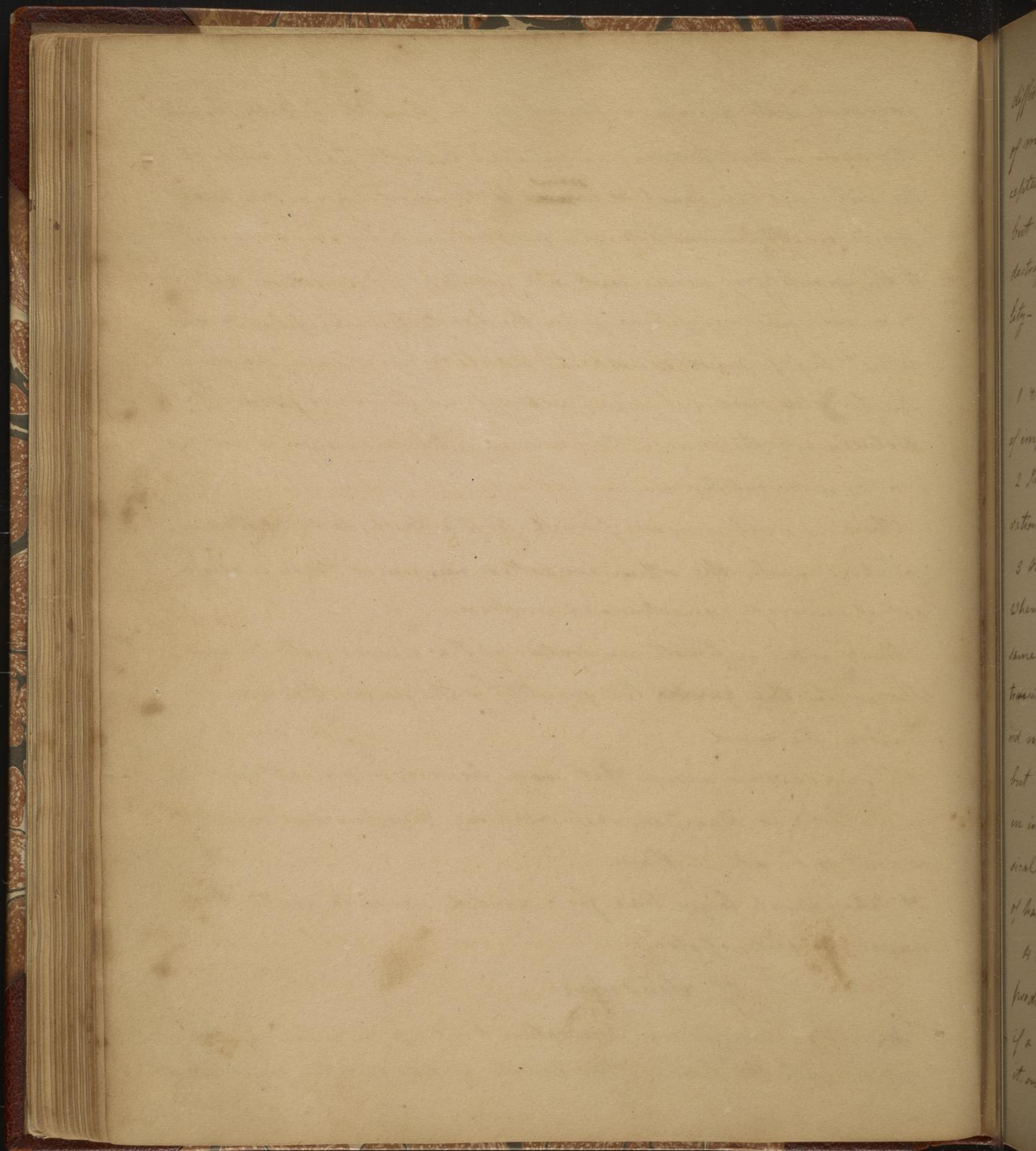
There is an intimate connection of the nerves with the mind. The greater ~~the~~ ^{greater} the quantity of the nerves the more extensive the mind.

There are some nerves that serve for very important functions of the body as digestion, respiration &c. Digestion and secretion cannot go on without them.

It takes much longer time for a divided nerve to unite, than muscles or bloodvessels.

Of Sensation

In what manner is communication kept up by means of the nerves with the brain? The decision of this question would be difficult



difficult, and is not of much importance in the practice of medicine. Every part of the body (the hair & nails excepted) possesses nerves & sensibility in certain situations, but sometimes the vehemence of the force of impressions destroys it. Some parts of the body possess specific sensibility.

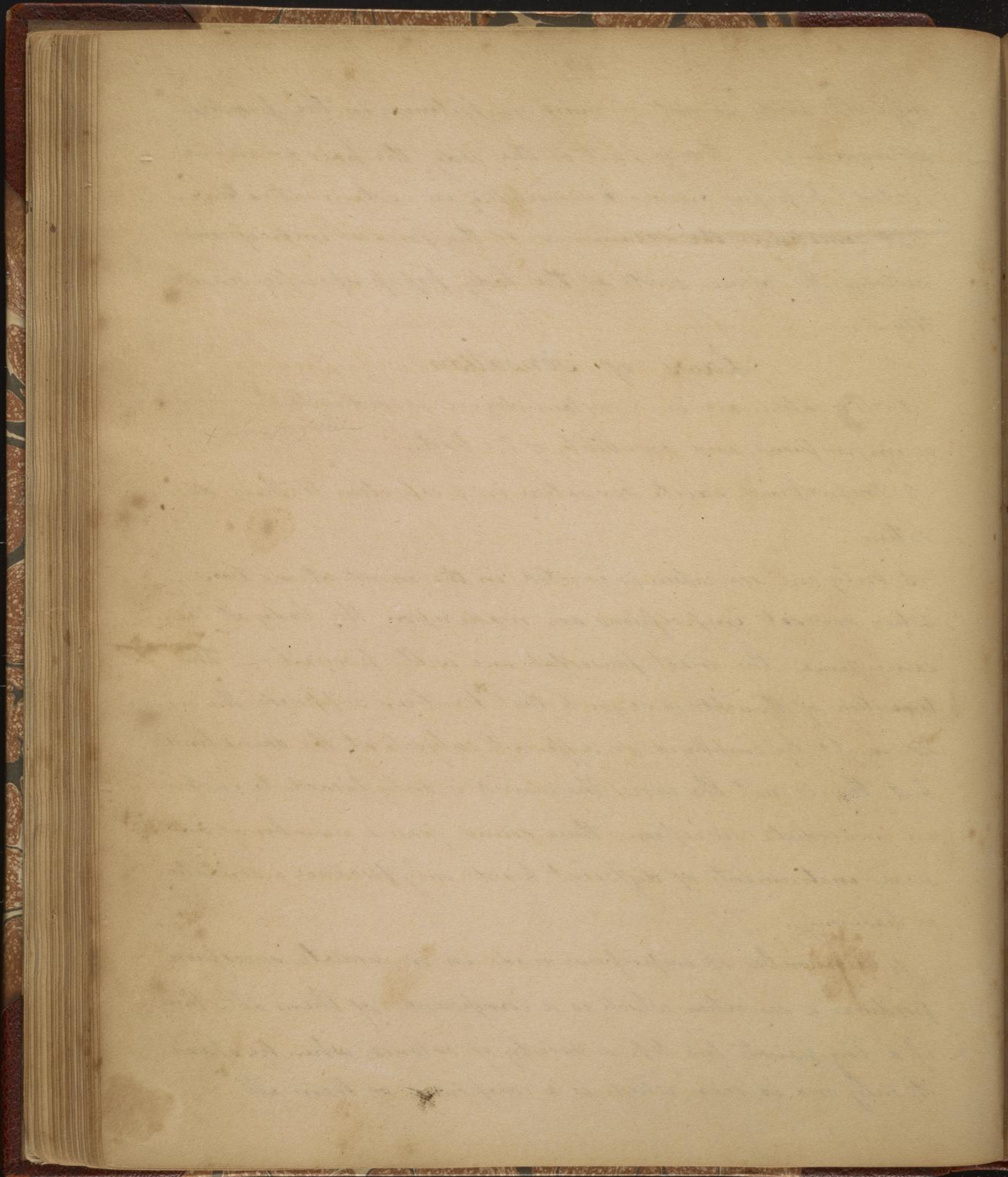
Laws of Sensation

1 Sensations are in a certain degree according to the force of impressions, and sensibility of the part.

2 Impressions excite sensation in proportion to their duration.

3 Only one sensation is excited in the mind at one time, when several impressions are made upon the body at the same time, the most powerful one will prevail. The transition of thought is so quick that ^{it} has been supposed the mind might be employed on different subjects at the same time, but this is not the case, the mind is only turned to each in immediate succession: thus sound from a number of musical instruments of different kinds only produce a sensation of harmony.

4 A number of impressions made in immediate succession produces a sensation which is a compound of them all; thus if a boy paints his top a variety of colours, when he spins it, only one is seen which is a compound of them all.



5
for
was
in wh
round
6
no pa
old
7
we m
not ab
the ne
8
propin
conne
9
in the
10
mes.
curab
11
mem
12
of hal

5 Certain sensations continue for some minutes, may even for half an hour, after the impression which produced them was made. It is by this law that we explain the manner in which a circle of fire is produced by turning a live coal round & round several times.

6 Many impressions which when gradually applied cause no pain; if they are suddenly applied will produce it, as cold to the teeth.

7 Every sensation is attended with pleasure or pain, tho we may not always be conscious of them, because impressions are not always accompanied with sensation; thus the pulsation of the heart & arteries in a healthy person produces no sensation.

8 Sensation is not always produced in the part where impressions are made, but in a different one. There is no natural connection between stimuli and the sensations they produce.

9 Too great a force of impression destroys sensibility. in this case depletion will restore it.

10 Strong sensations are sometimes displaced by weaker ones, thus painful sensations are chased away by pleasurable ones of less force.

11 Sensations are renewable by imagination and by memory.

12 They are much influenced by habit. The effects of habit upon our sensations are as follows.

1. ...
by ...
of her ...
able ...
2. ...
in the ...
3. ...
by ...
ful ...
very ...
H ...
this ...
cines ...
5. ...
their ...
6. ...
Super ...
his ...
7. ...
ion ...
8. ...
fear ...
apocia

1 Certain sensations which are originally painful become less so by habit and repetition. This is remarkably the case in the effects of heat & cold. The hardships of a savage life become agreeable by habit.

2 Sensations originally painful become pleasant by habit; as the use of tobacco, the cold bath &c

3 Certain sensations originally pleasant become painful by repetition; as a drop of water falling on the head at first feels pleasant, but after continuing it for some time it becomes very painful.

4 Some sensations are entirely destroyed by repetition. — This is remarkably the case in the administration of medicines; hence the necessity of changing them.

5 Sensations are influenced by a difference in age, in their powers of exciting pleasure or pain.

6 Sensations are influenced by comparison; thus a Linen Draper will tell the quality of different linens by running his fingers over them.

7 Sensations are influenced by a certain order or succession.

8 Two or more sensations produced at the same time appear confused or connected together. This is what is called association.

together
vided
the
with
velocity
attached
technique
and
is not
suppose
king of
The
dis.
put, ha
state.
No
red to
are
the mo
fifty
to set
that

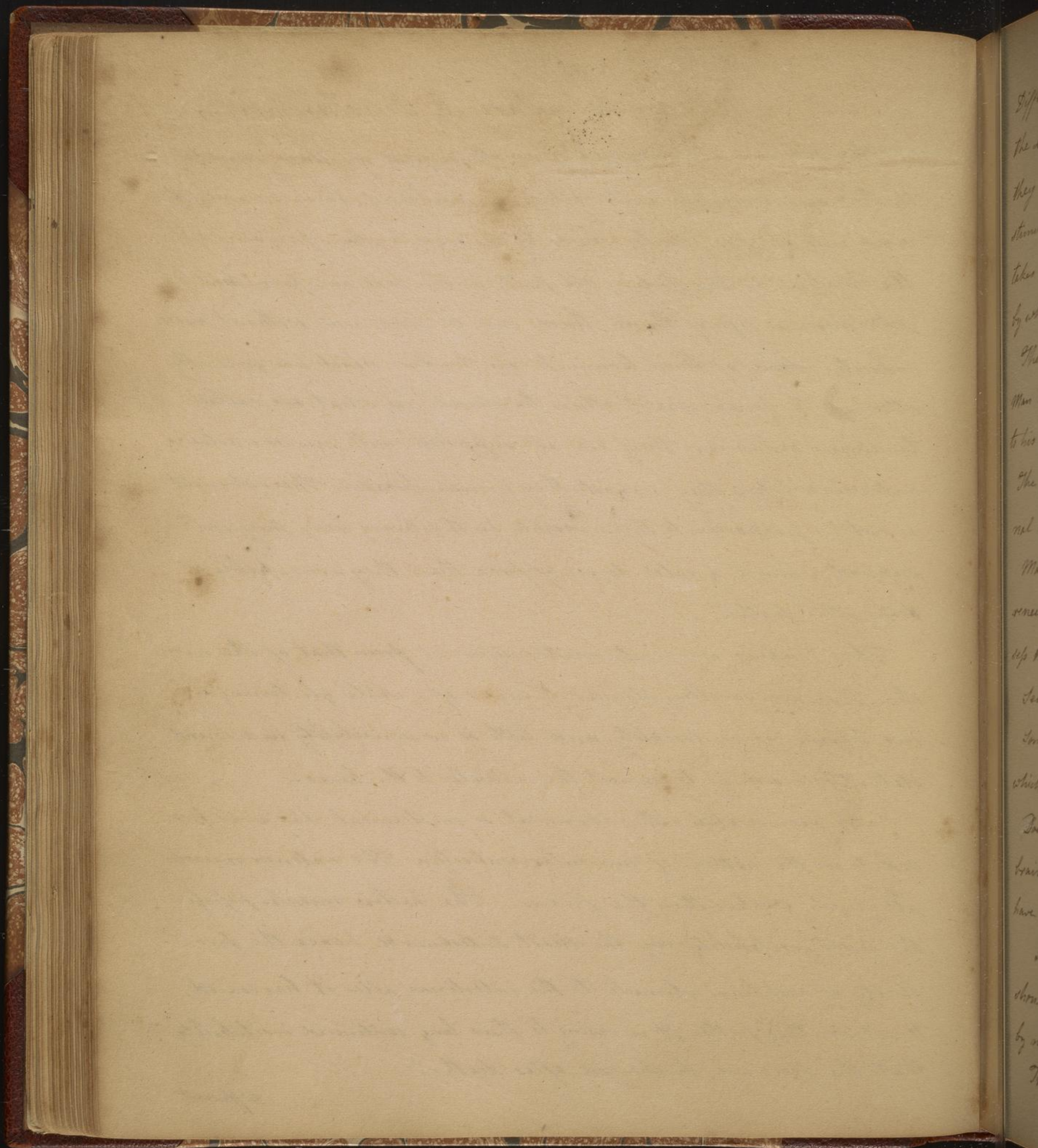
Of Motion, Voluntary & Involuntary -

The Muscles are composed of small bundles of fibres connected together and invested with cellular membrane, these are again divided into smaller fibrils, which by their contractions perform all the motions of the body. All parts of the body are furnished with more or less of them, there can be no spasm without muscularity. Some of them terminate in Tendons which are generally attached to bones, whilst others terminate in what are called tendinous expansions; they are all supplied with nerves, arteries and veins. When they contract they become broader. Their strength is not in proportion to their weight. In the living body they will support a much greater degree of force than they are capable of doing after death.

The Tendons are made matter different from that of the muscles. They are smaller, stronger, firmer & of a white glistening colour, having no contractility, and little or no sensibility in a sound state. Their use is to connect the muscles to the bones -

No examination either chemical or mechanical has ever proved to us the nature of muscular contraction. The extensor muscles are much weaker than the flexors. The hollow muscles possess the most irritability viz. the Heart, Intestines &c. hence the propriety of applying stimuli to the intestines after it has ceased to act on other parts. It is owing to their long continued irritability that the faces are discharged after death -

Different



Different muscles are acted on by different stimuli: for example the ~~Strong~~ Heart is acted on by blood & the stomach by food. When they become fatigued, they are invigorated by the addition of new stimuli, thus an Indian when, if he becomes fatigued when travelling takes up a log of wood & carries it on his shoulder for some distance by which means he recruits himself.

There are upward of four hundred muscles in the human body. Man is the weakest of all animals in proportion to his size, owing to his having a less number of muscles than they have.

The power of the muscles is increased by internal as well as external stimuli: the will possesses great influence over them.

Many animals possess the power of ^{re}integration; man does not, he renews little more than his hair, nails & bones; whilst they possess the power of renewing almost the whole of their bodies.

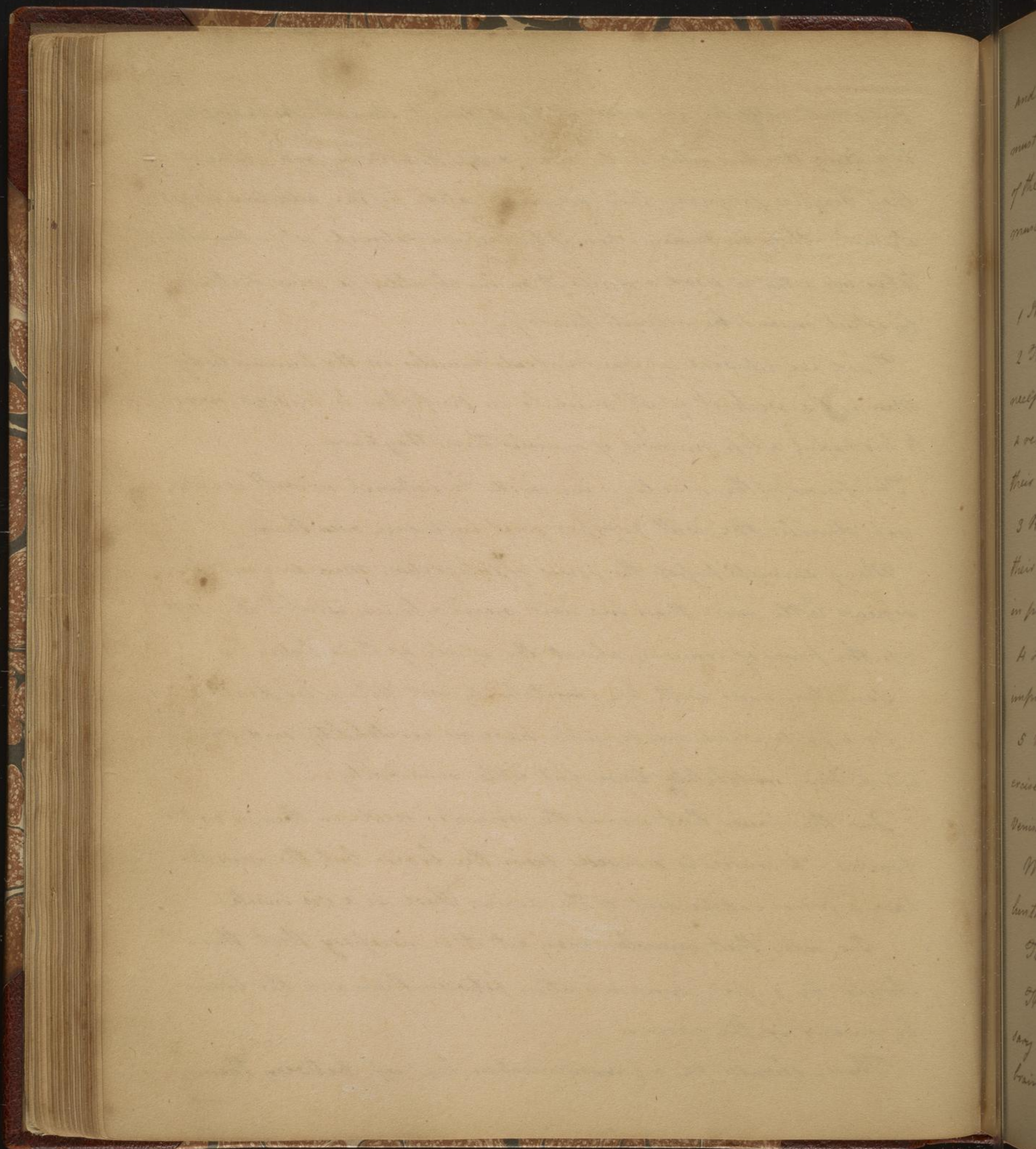
Sensation ends with life; irritability not till after death.

Some parts which are sensible have no irritability, and some which have irritability have but little sensibility.

Does the power that moves the muscles reside in them or in the brain? Its source is derived from the brain, but the muscles have a power independent of the brain; there is a *vis insita*

In order that muscles may act it is necessary that there should be a free communication between them and the brain by means of the nerves.

There should be a communication kept up between them
and



and the heart by means of the arteries and veins. Thus we must say with Dr Wryth, "The integrity of the nerves, the integrity of the arteries and the integrity of the muscles, is necessary to muscular motion".

The effects of Habit upon muscular action, —

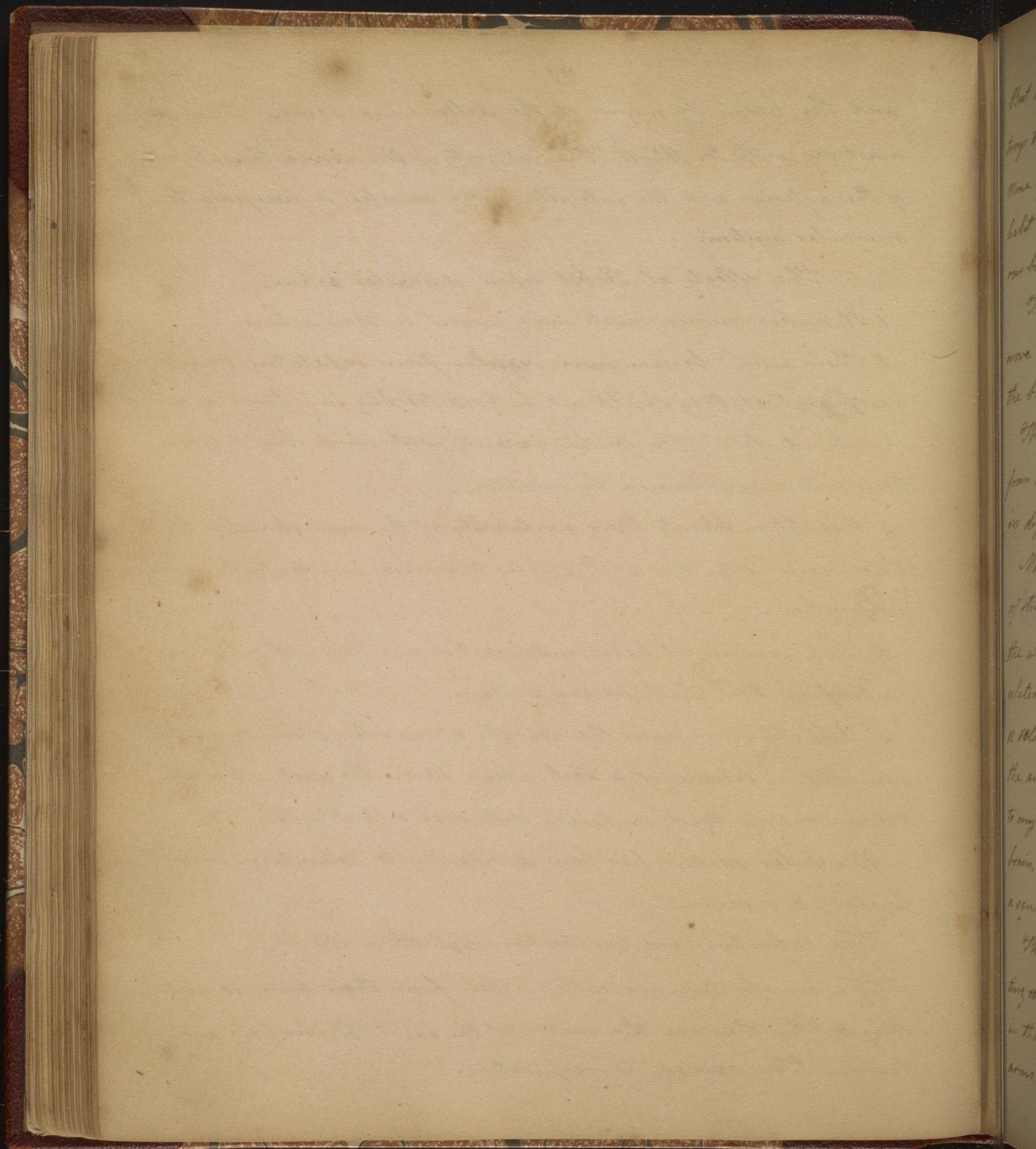
- 1 It makes muscles much more correct in their actions.
- 2 Their actions become more regular from repetition. It is necessary that they should not be kept too long in a tense or in a relaxed state. The facility & celerity with which they perform their actions is increased by repetition.
- 3 Repetition blunts their irritability of the same stimulus blunts their irritability, this as it relates to viscera is of importance in practice.
- 4 Long exercise or habit makes continuous actions without the impressions that first produced them.
- 5 Repetition increases the strength of muscles. When much exercised they become of a dark colour: hence the dark colour of Venison & Wild Fowl compared with veal & Poultry.

Muscular motion has been divided into voluntary, involuntary & mixed.

The voluntary are mastication, deglutition, speech,

The involuntary are called vital from their being so necessary to life, they are the motion of the heart, blood vessels and brain. The mixed is respiration.

But



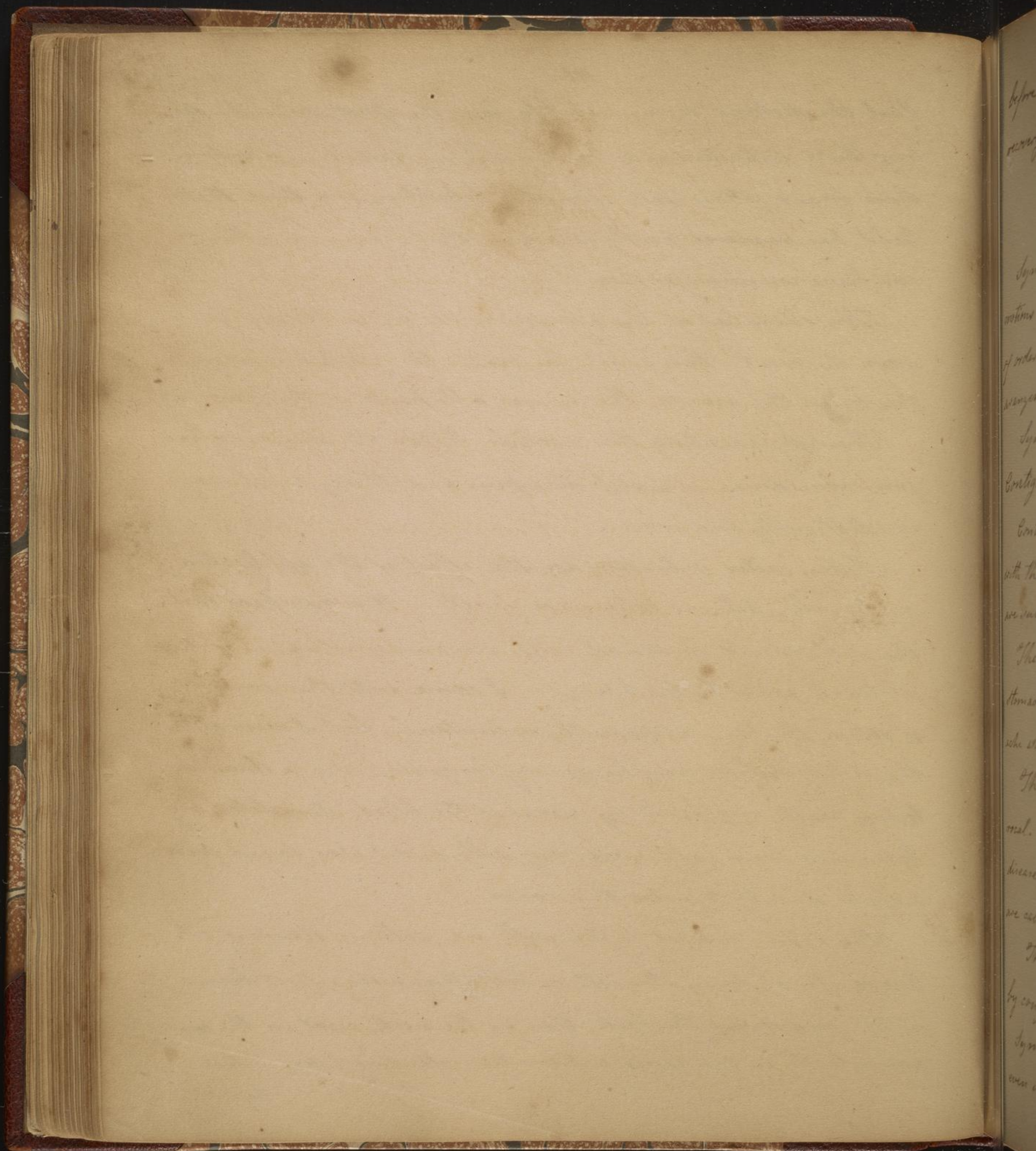
But the doctrine of animal life being the effect of stimuli destroys these distinctions and renders all our motions involuntary. None of our actions were originally voluntary, and those that habit has rendered partly so are mostly performed without our being conscious of them.

The stimulus of the air moves the lungs, the lungs move the heart, the heart the blood, the blood the brain, the brain the nerves, the nerves all parts of the body.

Thus by adopting this simple theory we save ourselves from abundance of useless discussion and theory, involved in difficulty and error.

Motions called voluntary are the effect of the application of stimuli. All our actions are forced. — It is necessary that the will should be moved or it remains inactive; it is stimulated to action by the brain. I came into this room at 12 o'clock this day apparently voluntarily, but it was not so, the air stimulated my lungs, my lungs imparted a stimulus to my heart, my heart by means of the blood stimulated my brain, my brain influenced my will, and I was forced from a sense of duty to enter this room.

The actions subject to the will are walking, standing, sitting &c. In children strength or voluntary motion first begins in the muscles of the back, then in the neck, next in the arms, lastly in the lower extremities; standing takes place before



before walking. The same succession of actions takes place in recovery from sickness. —

Of Sympathy —

Sympathy or association is not confined to sensations and motions it extends to mind. Life and health are the result of order in those connections; disease and death of their disarrangement.

Sympathies are divided into two classes, Continuous and Contiguous sympathies —

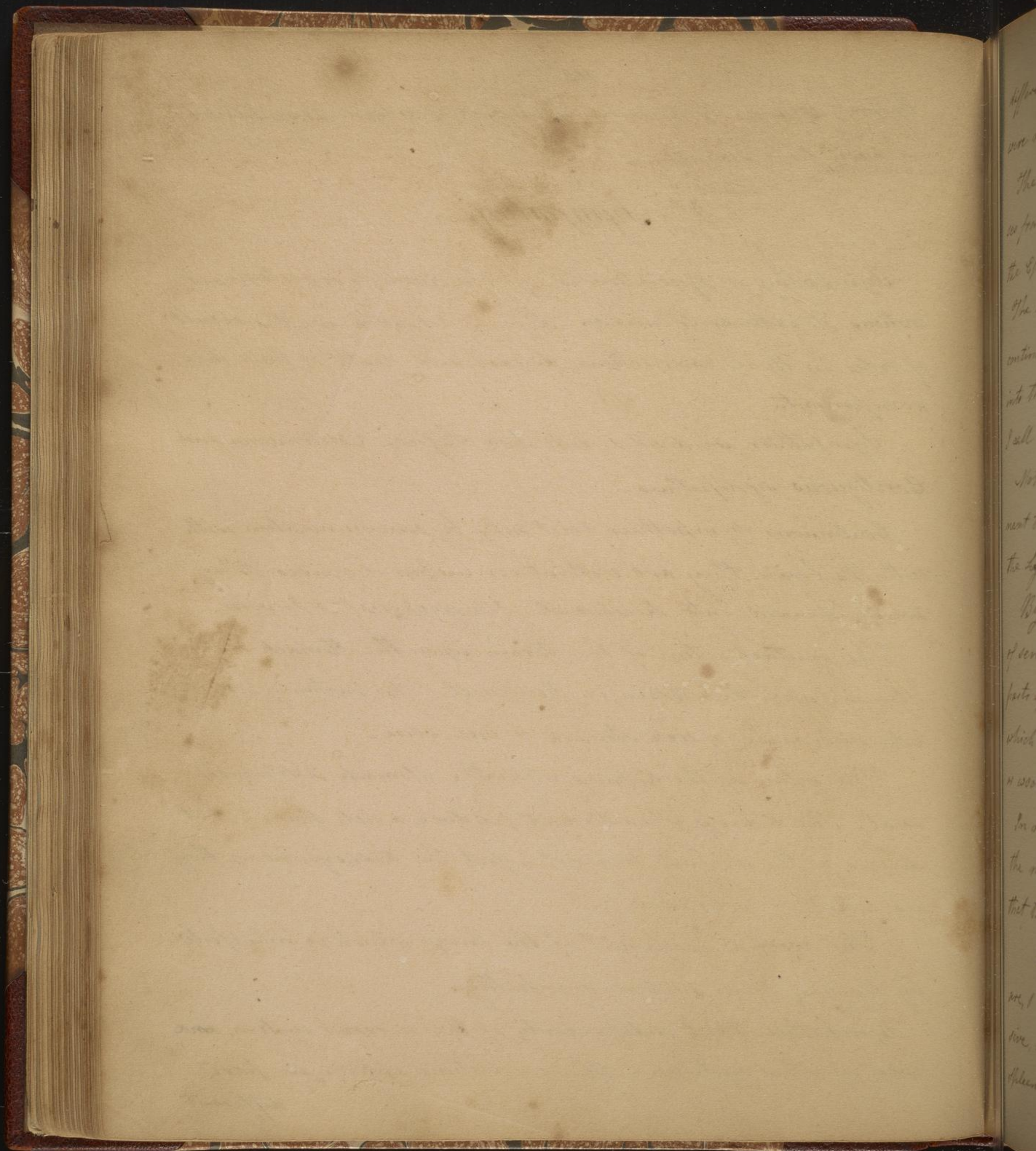
Continuous sympathies exist only by communication with the brain; they are without connection of nerves. They are subdivided into Reciprocal, Nonreciprocal & Inverse.

The mutual action of the Brain upon the Stomach & the Stomach upon the Brain is Reciprocal. For instance a head ache will cause a sick Stomach & vice versa.

The action of the Kidneys upon the Stomach is Nonreciprocal. The Kidneys when diseased produce a sick Stomach, but disease of the Stomach does not affect the Kidneys, hence they are called nonreciprocal —

The morbid excitement of the lungs which is manifested by coughing is an Inverse sympathy —

Sympathies exist independently of the nervous system, and even in other systems. — When sensations appear in parts
different



different from those on which the impressions producing them were made; we may call it error census, error motus. -

The sympathy of the breasts and uterus to each other arises from their receiving their blood from the same artery, viz the Epigastric which is a branch of the internal Illiac

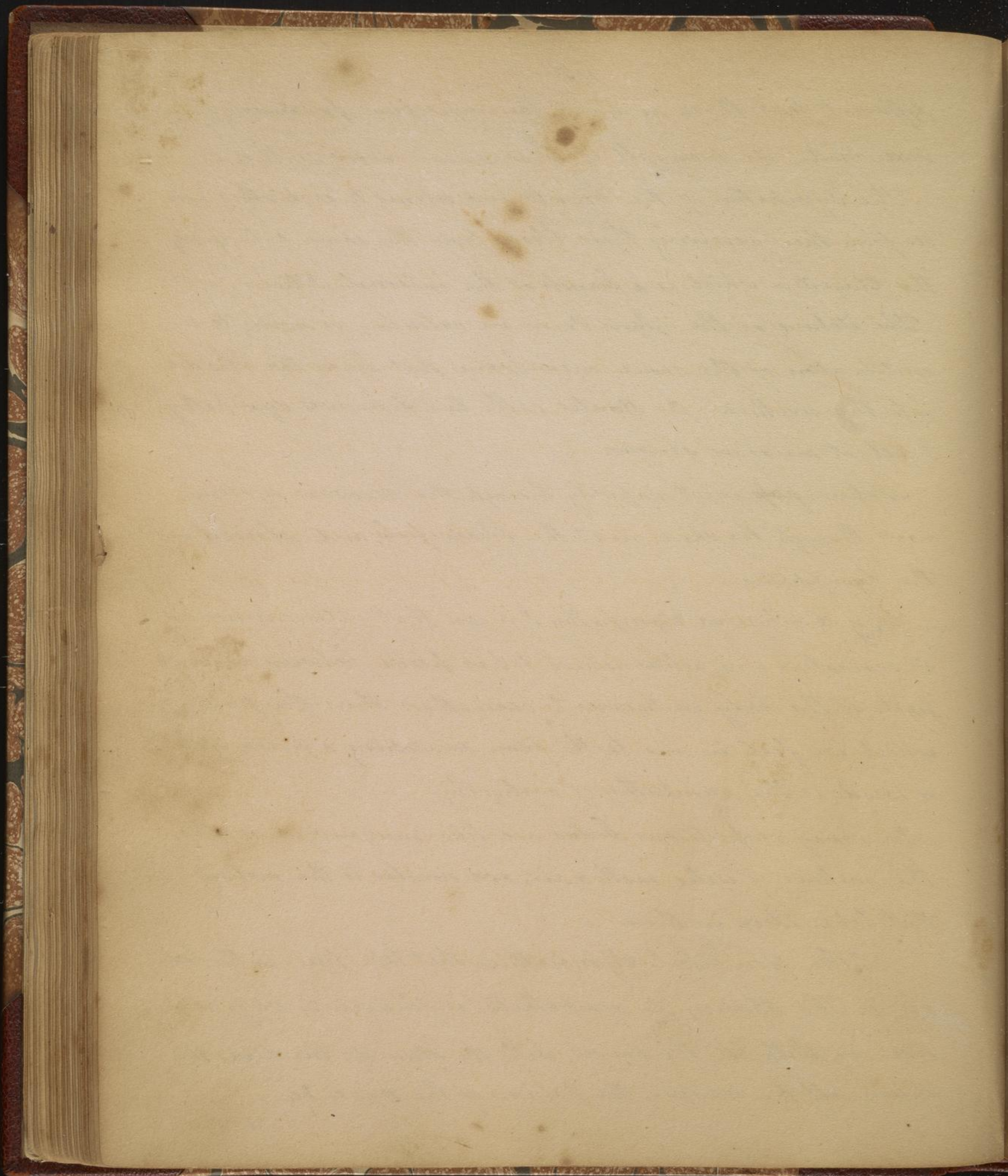
The itching of the Glans Penis in calculus, is owing to a continuation of the same membrane that lines the bladder into the urethra. Dr Hunter calls this delusive sympathy. I call it an error census.

Motions pass most rapidly through the nervous system, next through the skin, next the bloodvessels, and slowest in the Lymphatics -

By Contiguous Sympathy I mean that intercommunion of sensation and action which takes place between different parts of the body contiguous to each other: thus the pain which we feel in our teeth from scratching a piece of Stone or wood, is the sympathy of contiguity -

In many respects our bodies are like inorganized matter, the motions of water, earth & air, are similar to the motions that take place in them

The principal Sympathies that take place in the body are, 1 The Brain, its sympathetic influence is very extensive, viz with all the senses, with the stomach, the liver the spleen, all the muscles, the passions of the mind &c.



1 The
2 The
3 The
4 The
5 The
6 The
7 The
8 The
9 The
10 The
11 The
12 The
13 The
14 The
15 The
16 The
17 The
18 The
19 The
20 The
21 The
22 The
23 The
24 The
25 The
26 The
27 The
28 The
29 The
30 The
31 The
32 The
33 The
34 The
35 The
36 The
37 The
38 The
39 The
40 The
41 The
42 The
43 The
44 The
45 The
46 The
47 The
48 The
49 The
50 The
51 The
52 The
53 The
54 The
55 The
56 The
57 The
58 The
59 The
60 The
61 The
62 The
63 The
64 The
65 The
66 The
67 The
68 The
69 The
70 The
71 The
72 The
73 The
74 The
75 The
76 The
77 The
78 The
79 The
80 The
81 The
82 The
83 The
84 The
85 The
86 The
87 The
88 The
89 The
90 The
91 The
92 The
93 The
94 The
95 The
96 The
97 The
98 The
99 The
100 The

2 The Stomach, it sympathizes with the brain, tongue, intestines, heart and mind.

3 The Liver, it sympathizes with the stomach, bowels, lungs, shoulder, diaphragm and rectum.

4 The Lungs, they sympathize with the skin & genitals.

5 The Intestines, they sympathize with the stomach.

6 The Diaphragm, with the brain, stomach, muscles of the face, membrane of the nose & lungs.

7 The Teeth, with the head, stomach, lungs & the whole nervous system.

8 The Bladder, with the urethra, the palms of the hands & the soles of the feet, hence the burning in the hands and feet from ulcers in the bladder; it also sympathizes with the testicles.

9 The Genitals with the organs of speech.

10 The Uterus, its sympathies are numerous.

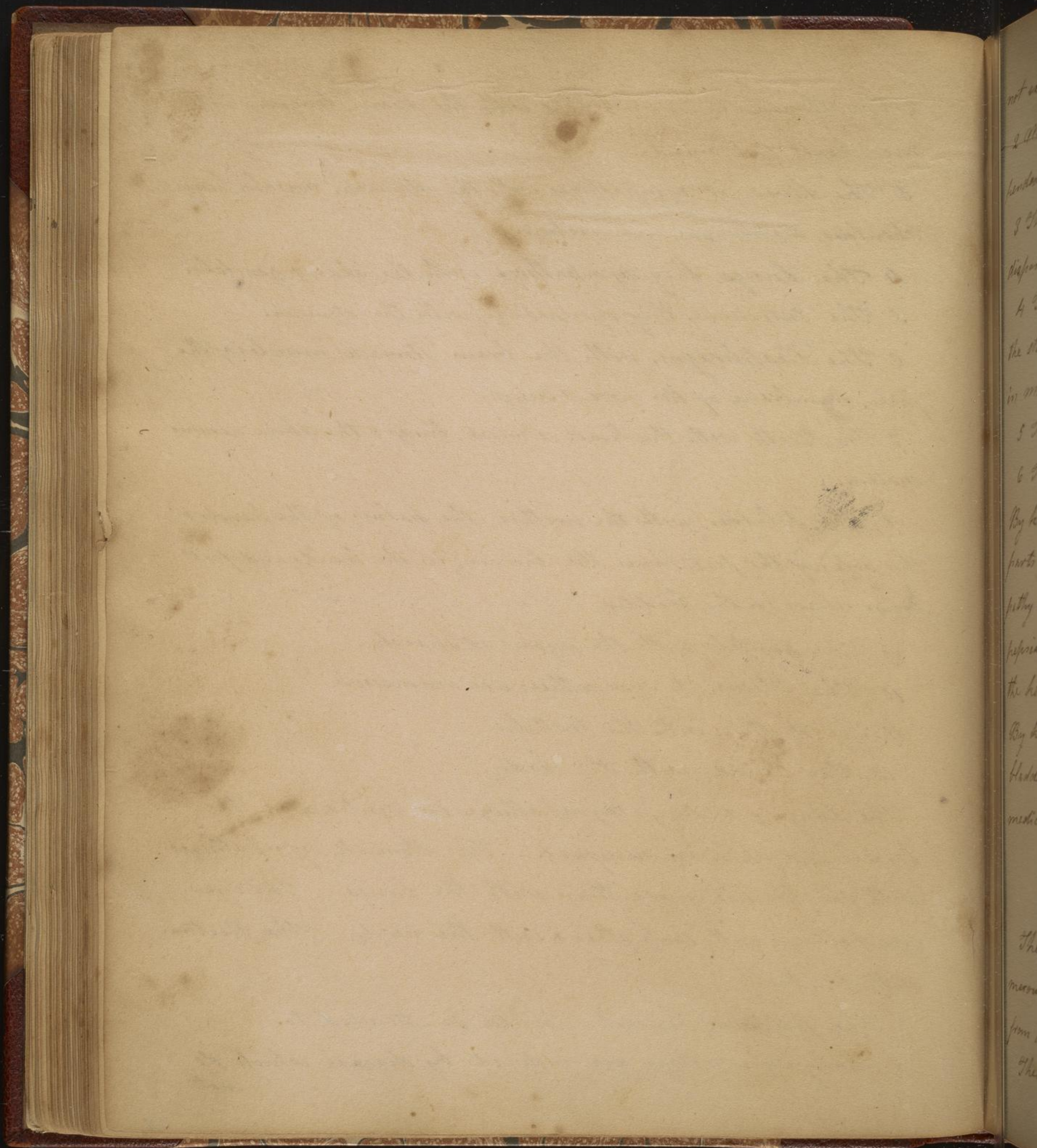
11 The Urethra with the testicles.

12 The Mind with the body.

The Lungs & Kidneys sympathize in winter, and the bowels and ^{Skin} in summer. - The Stomach sympathizes with the trachea more than with the lungs. The eyes sympathize with each other & with the head. The Rectum with the body.

The following remarks should be attended to.

1 Many sympathies are induced by disease which do
not



not exist in health.

2 Many of the sympathies which existed in health are suspended by disease.

3 The sympathies differ according to a difference in pre-disposition.

4 They differ in different ages & sexes: the sympathies of the stomach and intestines are much greater in infancy than in manhood.

5 They differ in different years in the same disease.

6 They differ in different seasons and climates.

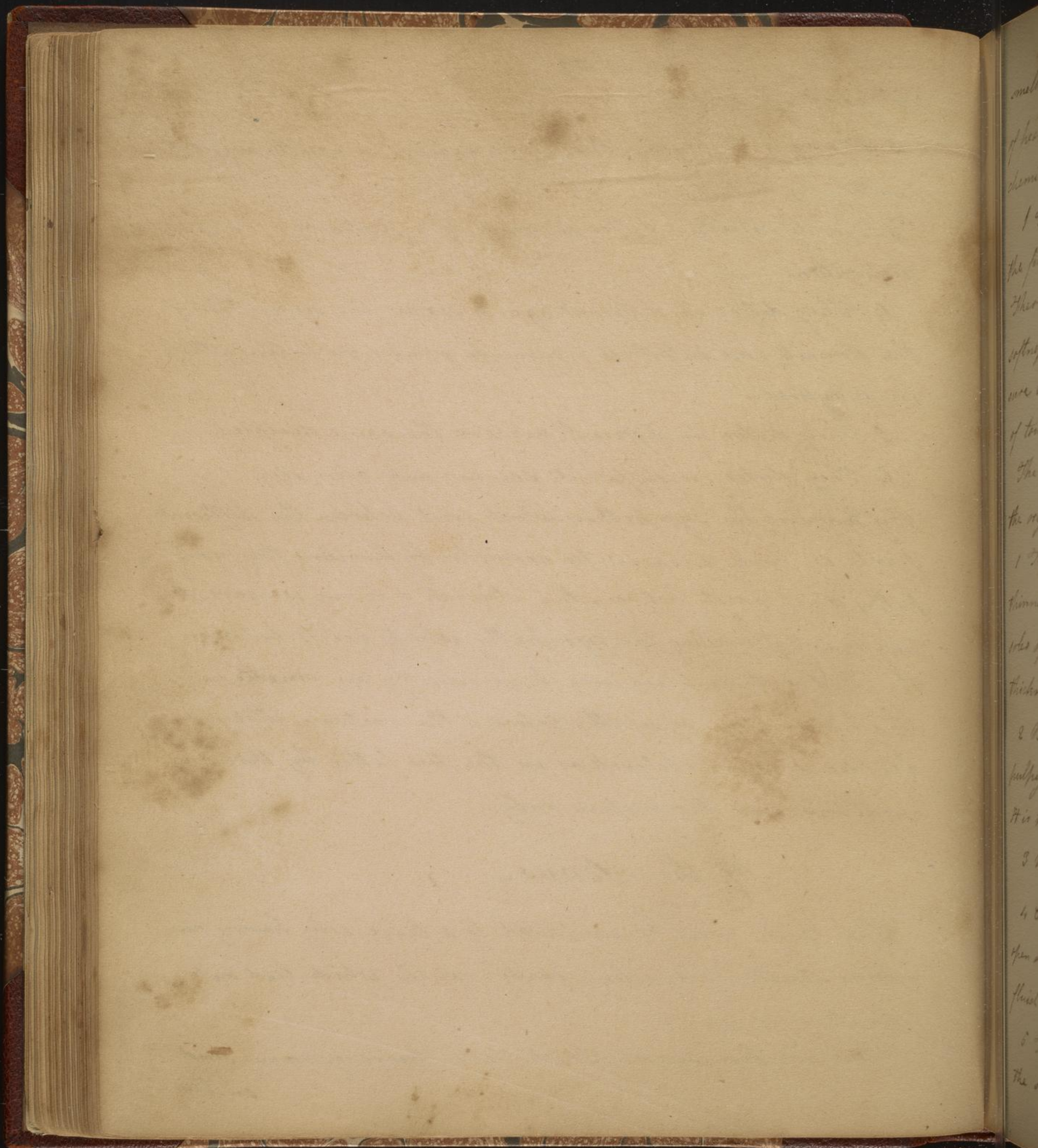
By knowing the sympathies which exist between the different parts we cure diseases: for example, by knowing the sympathy which exists between the stomach & liver, we cure dyspepsia. By knowing the sympathy which exists between the head & stomach we cure head ache by an emetic.

By knowing the sympathy between the rectum, uterus & bladder we cure obstructions in the two latter by throwing medicines into the rectum only.

Of the Senses

The Brain may be compared to a large city having numerous streets, lanes, alleys, roads & canals, which lead out from it.

There are five senses, Touch, Taste, hearing, seeing and smelling



smelling. Dr Darwin adds another which he calls the sense of heat. The three first are mechanical, the two last are chemical.

1 The sense of touch is not confined to the ends of the fingers only, it extends to all the parts of the body. There is a sense of touch by which we distinguish, hardness, softness, roughness, smoothness, levity, weight, heat, cold, pleasure & pain. Hunger & Thirst are produced by the sensation of touch.

The ~~perceptive~~ organs of this sense are, peculiarities of the organs of this sense are.

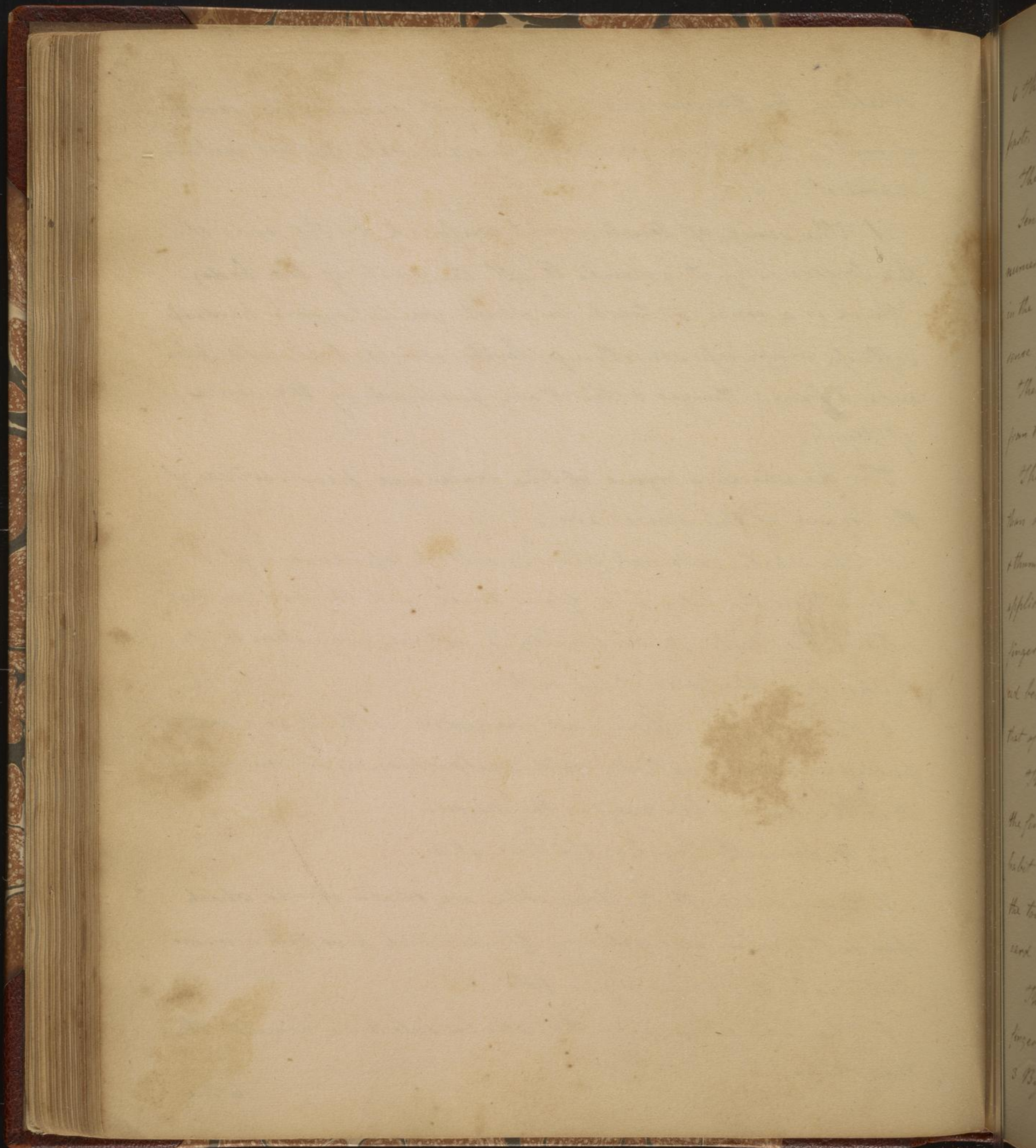
1 The whole external skin is called epidermis, it is thinnest on the lips and Glans Penis, and thickest on the soles of the feet. Its sensibility is not in proportion to its thickness on the soles of the feet.

2 Beneath the cuticle and connected with it is a soft pulpy substance called rete Malpighianum or mucosum. It is the seat of blackness in the Negroe.

3 Underneath this lies the true skin.

4 Connected with the true skin are small glands which open on the cutis, also sebaceous glands which pour forth a mucous fluid as in the groins & arm-pits.

5 The hair comes from the cellular substance beneath the skin.



6 The cuticle and true skin are not confined to the external parts, they extend into the mouth, urethra, vagina, rectum &c

The cutis contracts by cold and relaxes by heat as in fever.

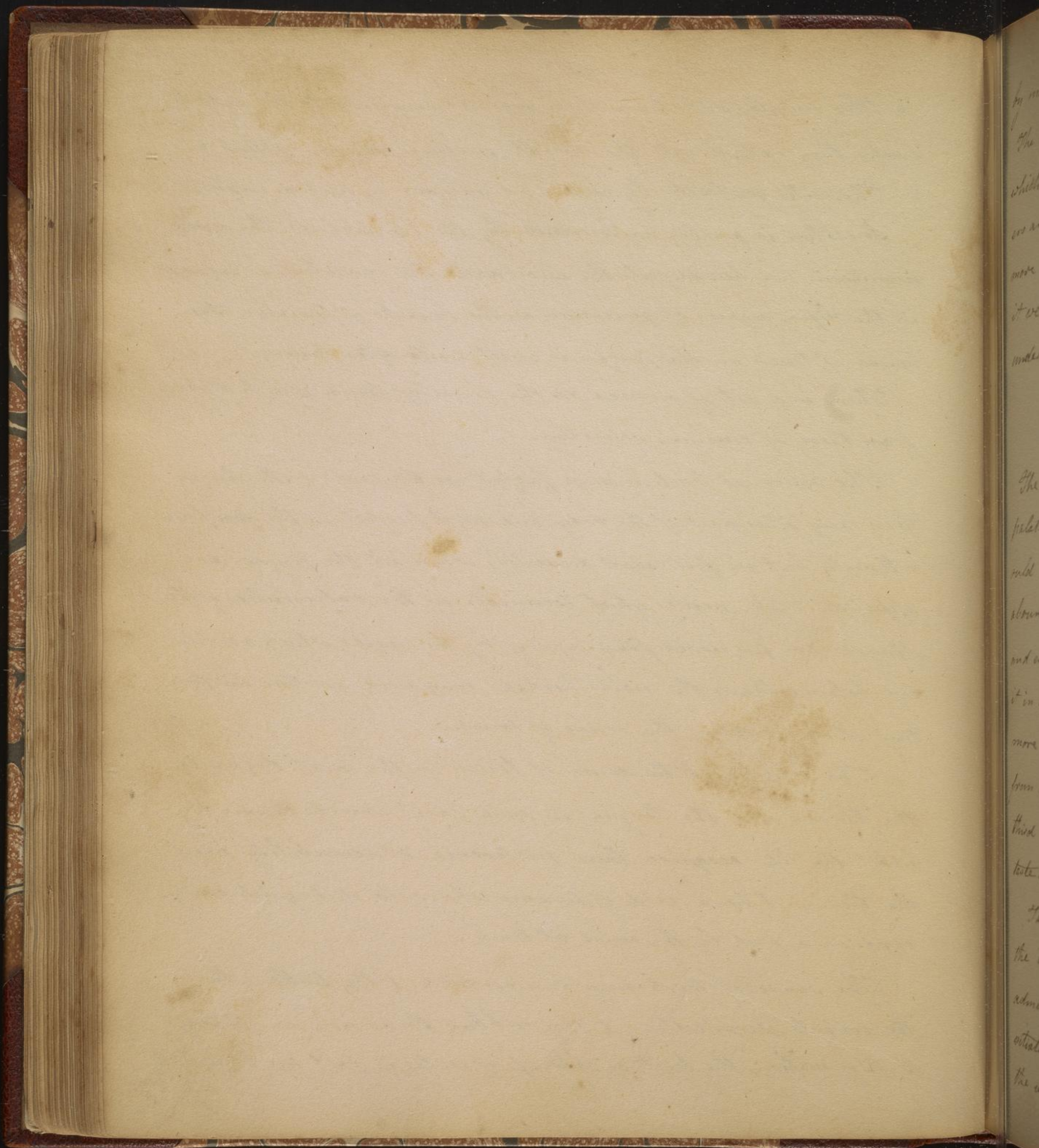
Sensation is greatly influenced by the bloodvessels, the more numerous the bloodvessels the more acute the sensation, as is proved in the lips, organs of generation and the breasts of females. The sense of touch in the fingers is most acute after fasting

*There is a set of nerves for the sense of touch which differ from those of common sensation.

The sense of touch is more perfect in the ends of the fingers than any other part of the body, and most perfect in the fore fingers & thumb; but we feel most accurately when all the fingers are applied. The nerves which terminate in the extremities of the fingers are preserved from injury by the nails which are placed behind them; the nails perhaps may serve another purpose, that of reverberating the sense of touch.

The lips possess the sense of touch in the next degree to the fingers; and the tongue in some cases exceeds them. By habit the lips acquire their preference of sensibility over the toes. — I have read of persons who could distinguish every card in a pack by the sense of touch.

The sense of touch may be improved, 1 By putting the fingers into warm water. — 2 By rubbing them on a rough body. 3 By motion, the heat or coldness of water is felt most sensibly
by



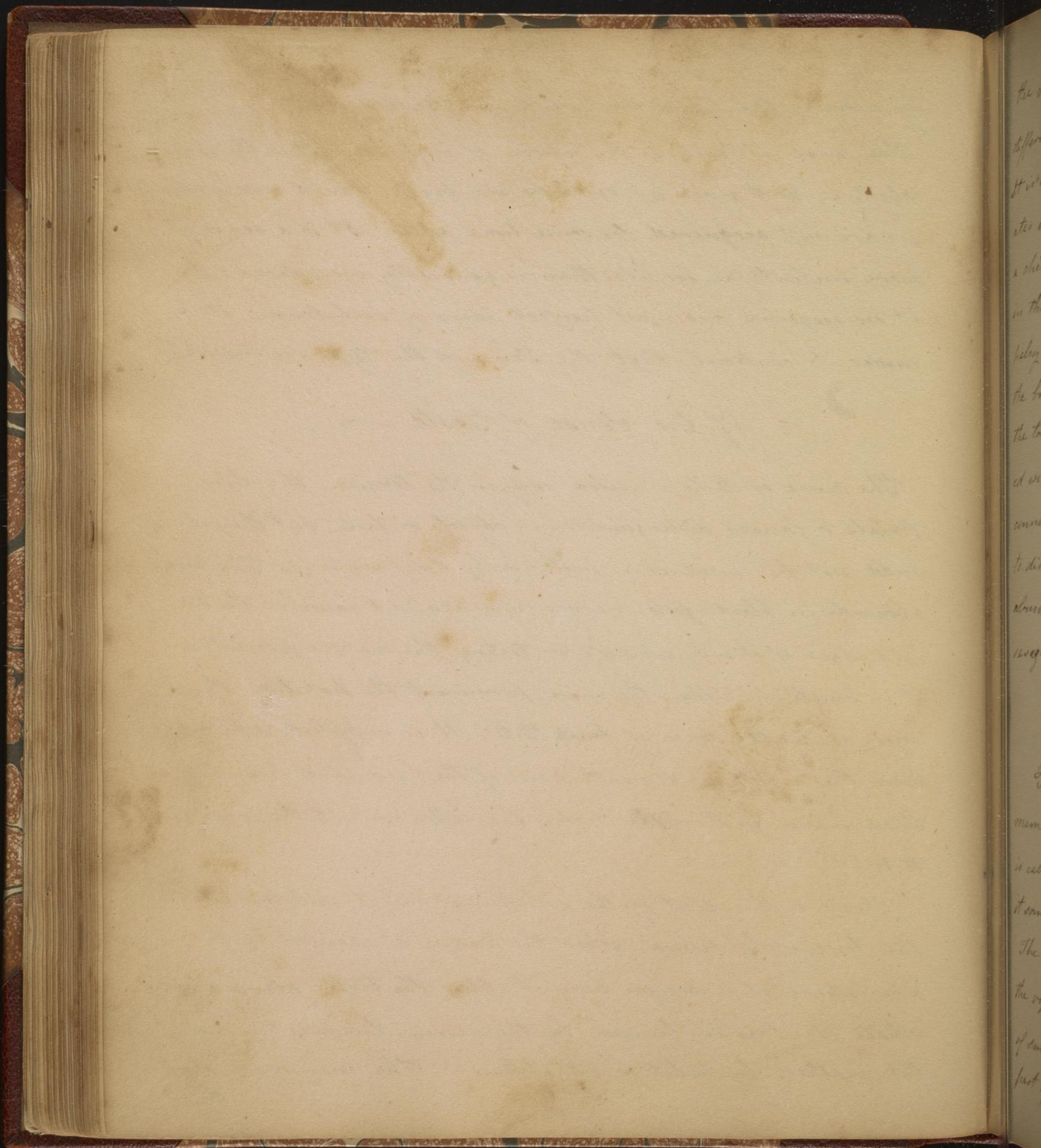
by moving the hand backward and forward in it—

The sense of touch is the source of instinct. It is the sense which is first given us, even before birth; whilst many others are not acquired for some time after. It is a sense of more importance in life than is generally considered; by it we acquire our most perfect ideas of substances, it is under its controul that the Pen and the Type are moved.

Of the Sense of Taste—

The sense of taste is seated only in the tongue, the lips, palate & fauces distinguish some objects of taste, but they should not be considered as particularly necessary to it. The tongue abounds in bloodvessels, nerves, lymphatics & muscles; the tip and edges of it only are used in tasting; the nerves project from it in small papillae, the more prominent the papillae, the more acute the sense of ~~touch~~ taste. It is supplied with nerves from the eighth and ninth pairs of the head, and from the third branch of the fifth pair; the latter imparts the sense of taste.

Taste is the effect of the solution of sapid substances on the tongue by saliva, when the saliva is changed by the admixture of a foreign body it alters the taste; odours also vitiate it: it is influenced by the various temperatures of the weather; by habit or repetition. — The manner in which
the



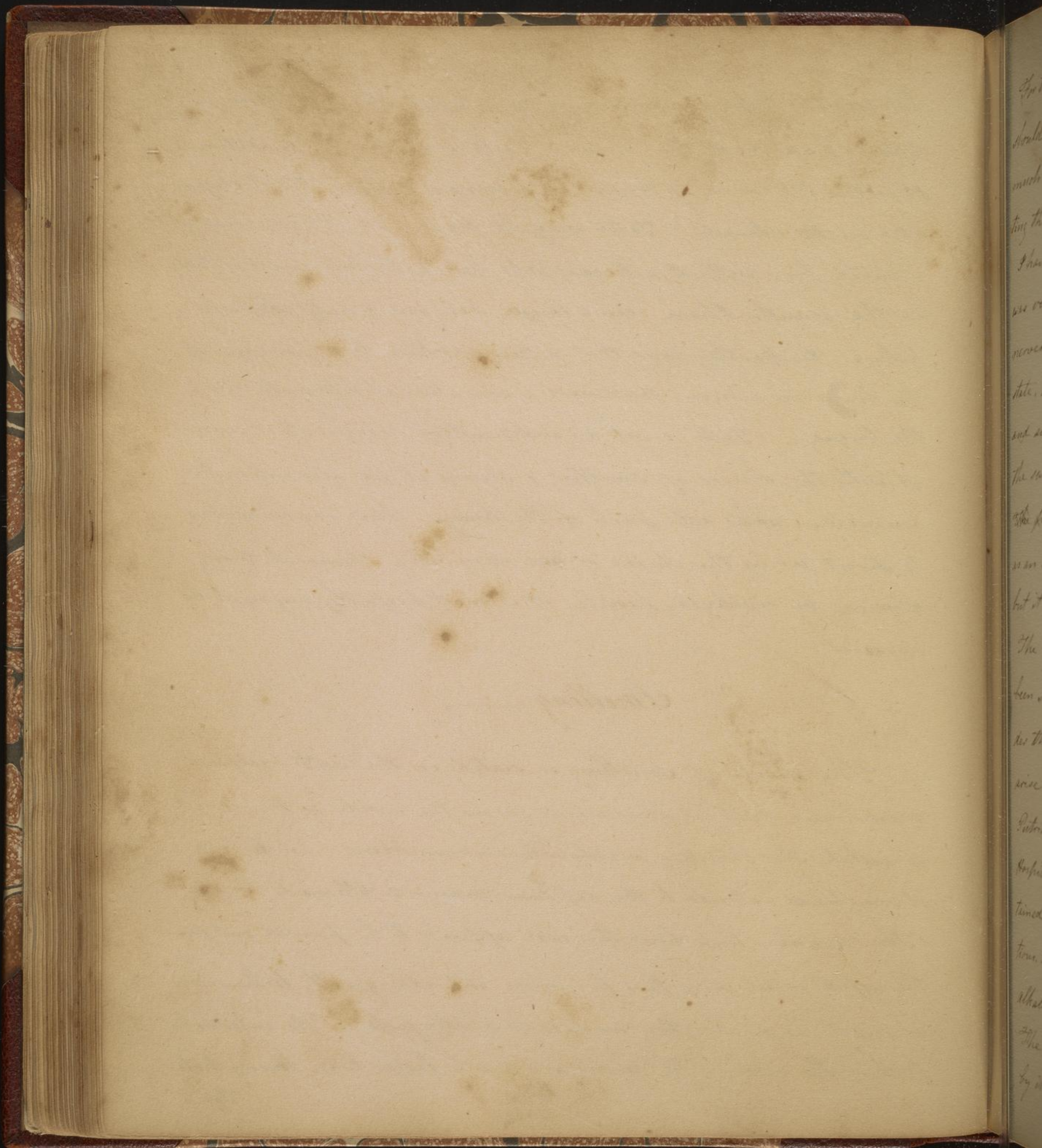
the various tastes are excited is by a variety of impressions on different nerves of the tongue. Taste is a specific sensation. It is the cause of longing in pregnant women, tho it originates in the stomach. Taste may be translated, I have need of a child born without a tongue who had a perfect sense of taste in the mouth. I have seen a tongue half red & half white in a palsy. Dr Hartley says that bitter applied to a fungous of the brain in a man, produced a sensation of bitterness upon the tongue. Taste is not an independent sense; it is connected with the senses of smelling & seeing; it has also intimate connections with all parts of the body. This sense serves to direct us in the choice of our aliments. From its being abused by civilized people, it is most perfectly enjoyed by savages.

Of Smelling —

The sense of smelling is seated in the soft pulpy membrane full of pores which covers the inside of the nose & is called the Pituitary or Schneiderian membrane. In disease it sometimes extends to the septum Nasium & Ethmoid bone.

The mucus which lines the nose appears to be poured out from the vessels which run thro the nose, and adds greatly to the sense of smell, as do also the numerous bloodvessels in the internal part of the nose. The nerves are much larger than those of taste.

For



For the performance of smelling it is necessary that there should be a free respiration. The nicety of this sense is very much increased by making short & quick inspirations & shutting the mouth which prevents the effluvia from being wasted.

I have heard of a Lady who said that every thing she smelled was very fetid, this was no doubt owing to an error sensus, the nerves that convey sweet odours to the brain are in a morbid state, and those that convey fetid odours perform their office and all odours become fetid, or the nerves designed to convey the sweet odour may be vitiated & transmit a fetid smell. ~~The question~~ Why may there not be an error sensus as well as an error loci? A stone in the bladder ought to produce pain but it commonly causes an itching of the glans Penis.

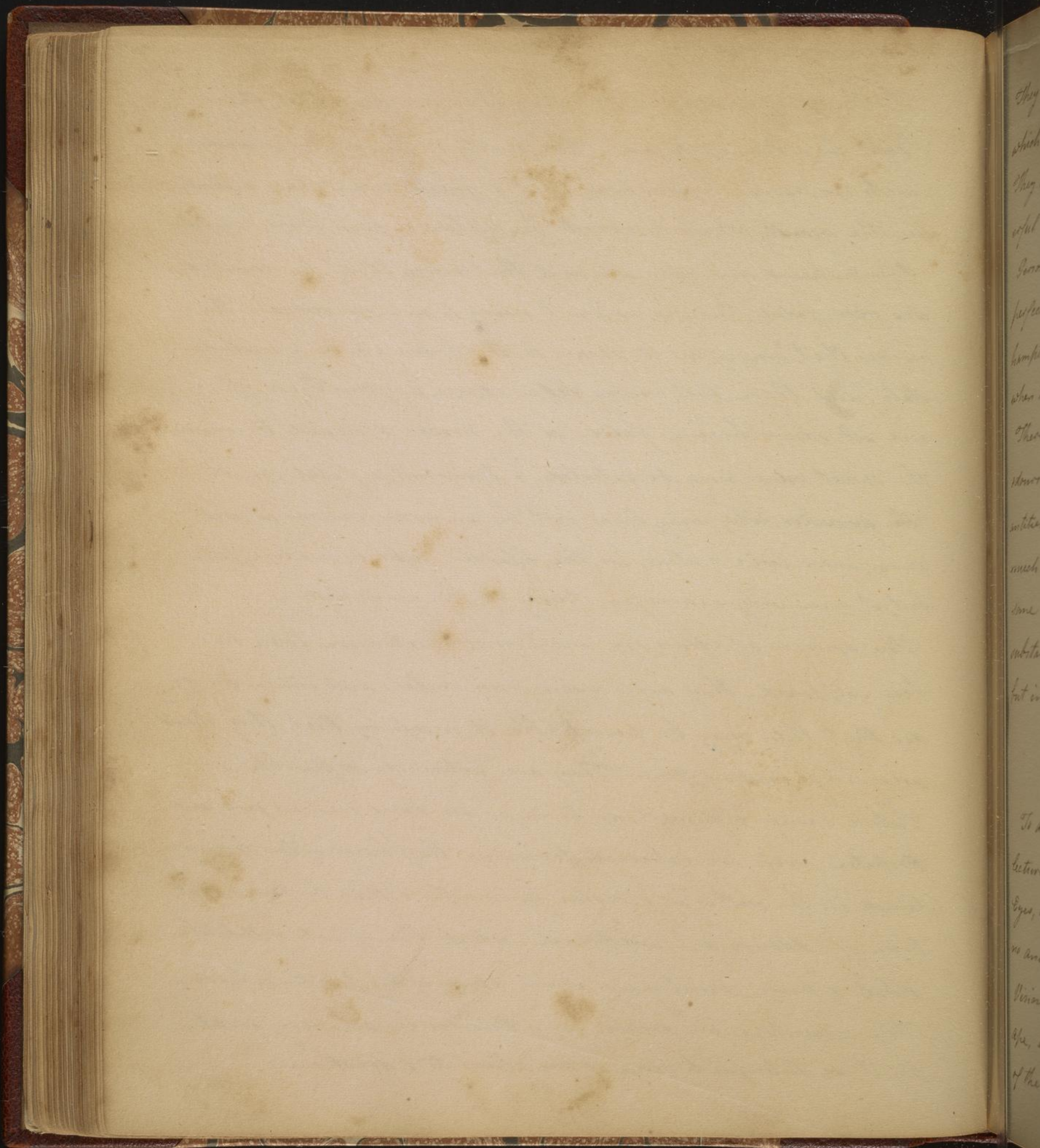
The sources of odours are much more extensive than has been supposed, they arise even from metals and stones. In order that they may be perceptible it necessary that they should arise in a gaseous form. They are extremely diffusible.

Putrid odours & animal effluvia as we have seen in jail and Hospital fevers are extremely tenacious; they have often been retained in the clothes of a person for months & then become infectious. — Odours are medicinal, witness the effects of Volatile

alkali & pure country air. Strong odours often produce tears.

The advantages we derive from this sense are very great, by it we distinguish some of our aliments & drinks —

They



They are friendly to morals; that passion must be strong indeed which the pure air of a morning in May could not tranquilize. They have an extensive effect in certain diseases, and a powerful influence upon the mind.

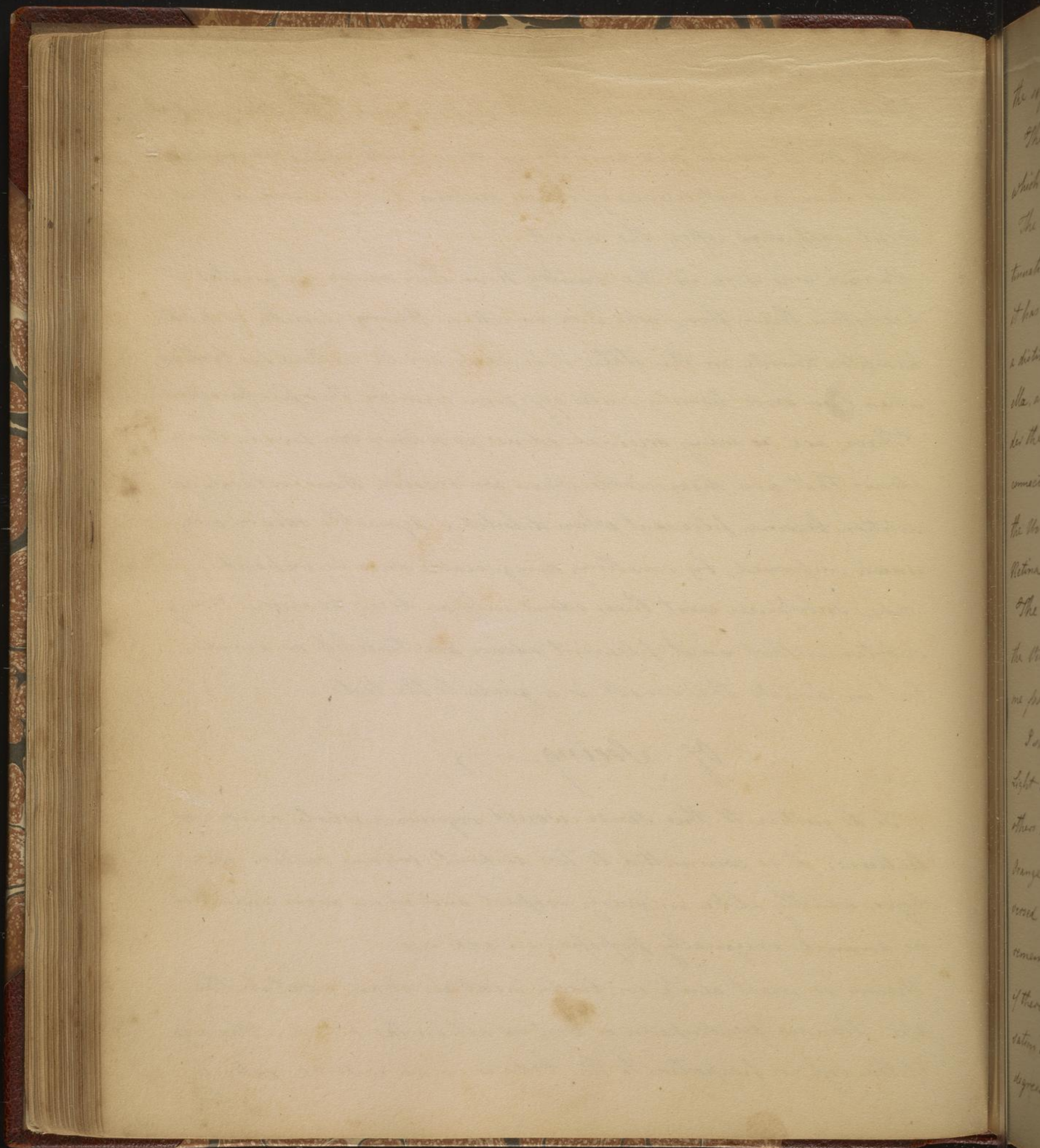
Persons who live in the country have this sense in greater-perfection than those who live in cities. Henry Smith of Northampton County in this state, it is said could follow his brothers when they were twenty miles off from him by their perspiration.

There are as many original odours as colours viz. seven. Some odours that are disagreeable when we receive them in large quantities, become pleasant when diluted. Agreeable odours are much improved by smelling disagreeable ones beforehand - some substances emit their odour only on being bruised. Many substances that emit pleasant odours are tasteless or acrid, but in fruits the smell is a guide to the taste.

Of Seeing

To do justice to this sense would require a whole course of lectures; it is committed to two distinct organs called the Eyes, exactly alike in every respect, and of an even number; no animal originally possesses an odd eye.

Vision is most acute in birds, next in man, next in the ape, then in quadrupeds, & least of all in the whale. The size of the eye in proportion to the body is in an inverse ratio to the



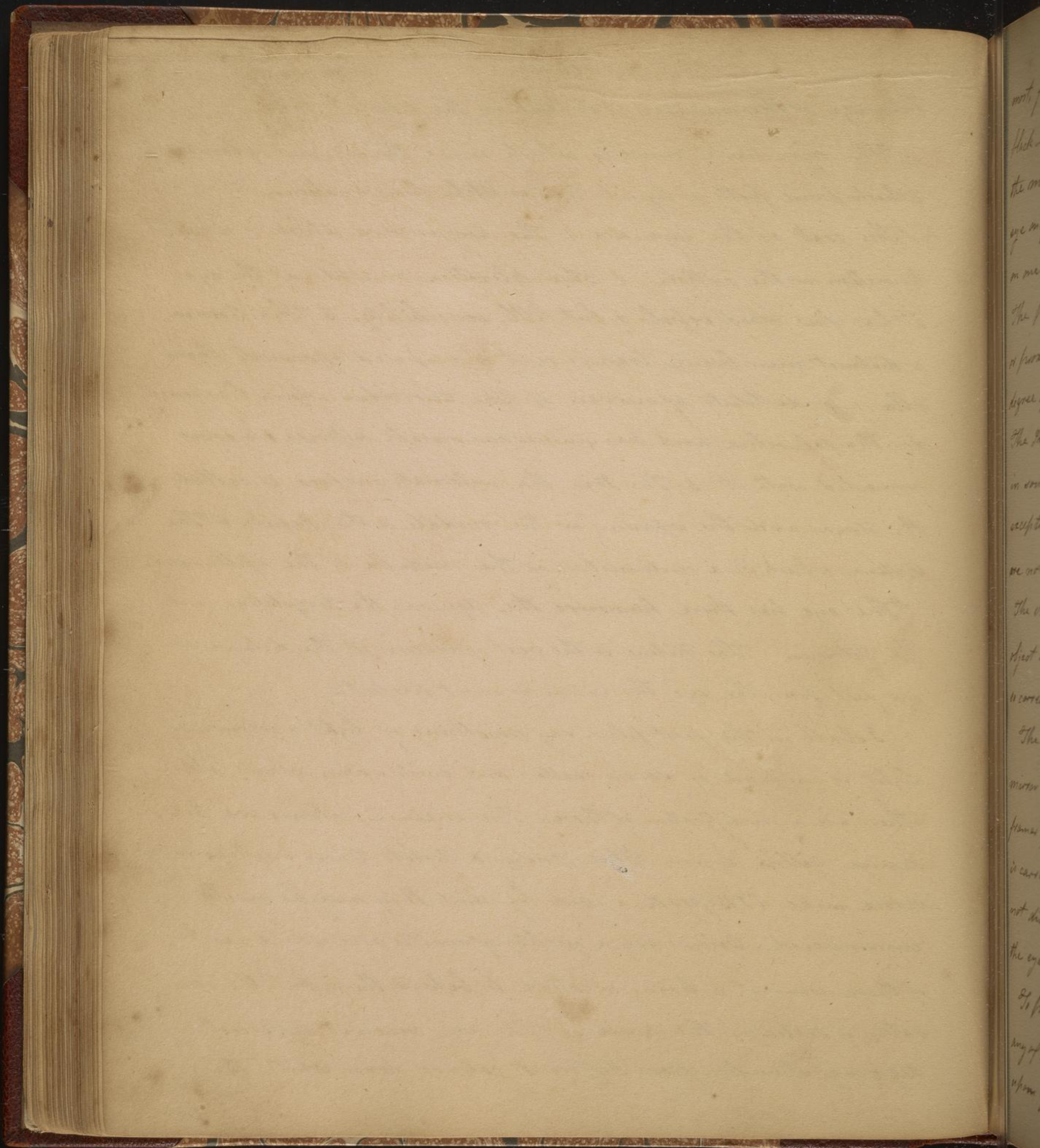
the size of the animal; it is least in the whale.

The eyes have muscles which move them, and glands which pour forth a liquid to facilitate their motion.

The coats of the eye are 1 The Conjunctiva which is a continuation of the cuticle. 2 The Sclerotica or white of the eye, it has few blood vessels & but little sensibility. 3 The Cornea, a distinct membrane, transparent & composed of several lamellae, and destitute of nerves. 4 The Choroides, which lies under the sclerotica and has numerous small arteries & nerves connected with it. 5 The Iris, the internal surface is called the Uvea, and the opening in the middle is the Pupil. 6 The Retina which is a continuation of the medulla of the optic nerve.

The eye has three humours, the Aqueous, the Crystalline, and the Vitreous. The Retina is the seat of vision; at the distance of one foot from the eye the vision is most perfect.

I shall in the first place say something of light & colours. Light is composed of seven matters, and emits seven colours, all others are a modification of these. The original colours are, Red, Orange, Yellow, Green, Blue, Indigo & Violet. Their initials reversed make VIBGYOR, a word by which they may be easily remembered. Colours are a quality of matter and would exist if there was not a living creature to behold them, but the sensation is seated in the mind. The eye receives different degrees of stimulus from different colours, from white the most



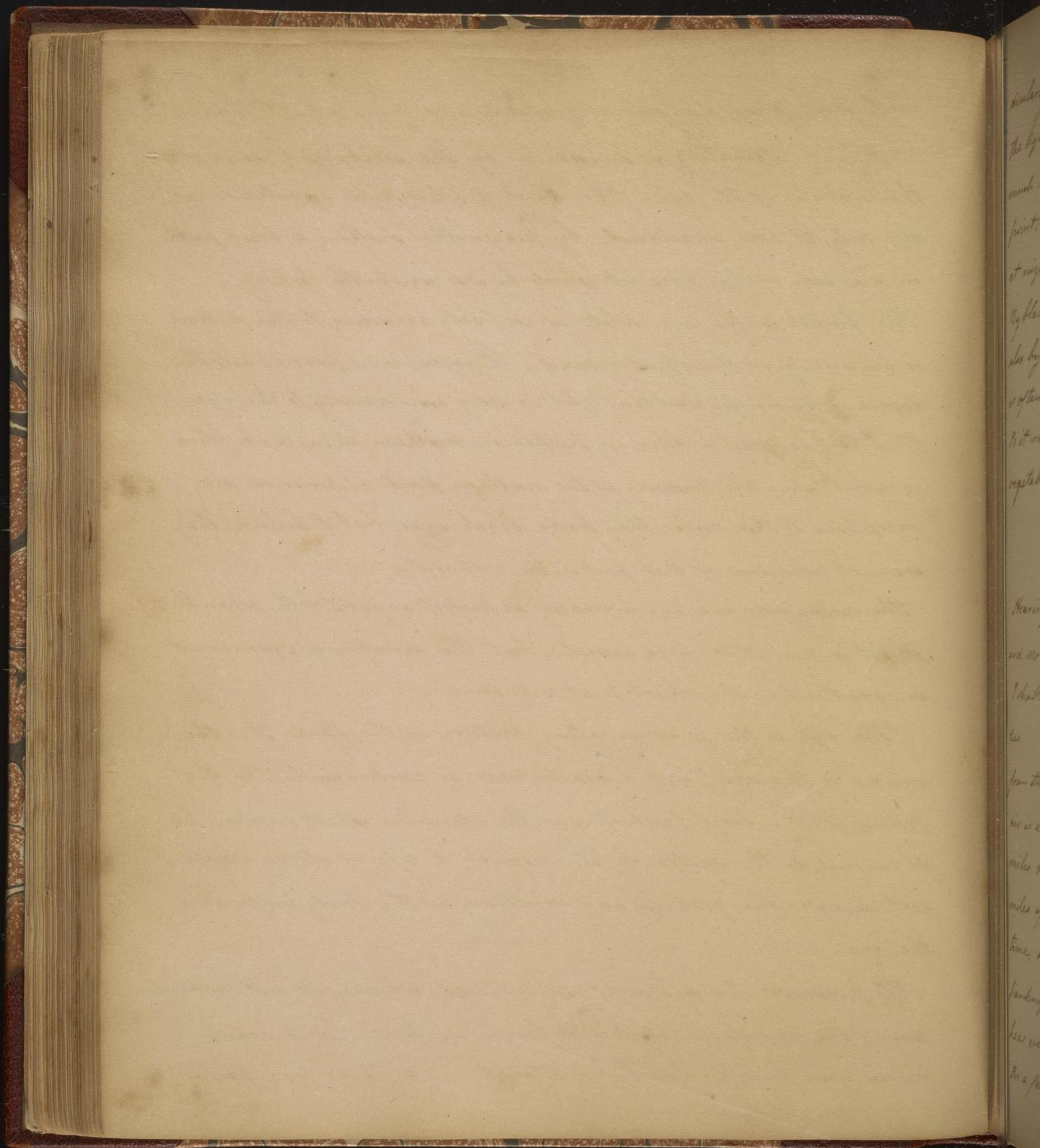
most, from green a medium quantity and none at all from -
 black - Squinting is occasioned by the weakness of some of
 the muscles of the eye. The Rev. J. Whitefield squinted in one
 eye only, it was occasioned by his mother putting a black patch
 on one side of his nose at which he was constantly looking -

The pupil of the eye dilates or contracts according to the distance
 or proximity of the object viewed; it expands in proportion to the
 degree of darkness. Sudden light is very unfriendly to the eye.
 The Iris is grey or blue in people in northern climates, & black
 in southern; the Indians of the northern parts of America are
 exceptions to this rule, they have black eyes, but I believe they
 are not aborigines of that part of the continent -

The vision from one eye is nearly as perfect as from both, when the
 object is near it is more accurate, but the direction of vision is not
 so correct when the object is at a distance -

The eye is the predominating feature of the face, it is the
 mirror of the soul and a masterpiece of workmanship of the
 frames of it: a large proportion of the stimulus which support life
 is carried to the system by its means. A life of study would
 not discover the goodness and excellency of the Deity in forming
 the eye -

To preserve the eye sight unimpaired we should not continue
 any of the muscles on stretch too long at one time; avoid reading
 upon your back in bed by candlelight, and never look perpen-
 dicularly

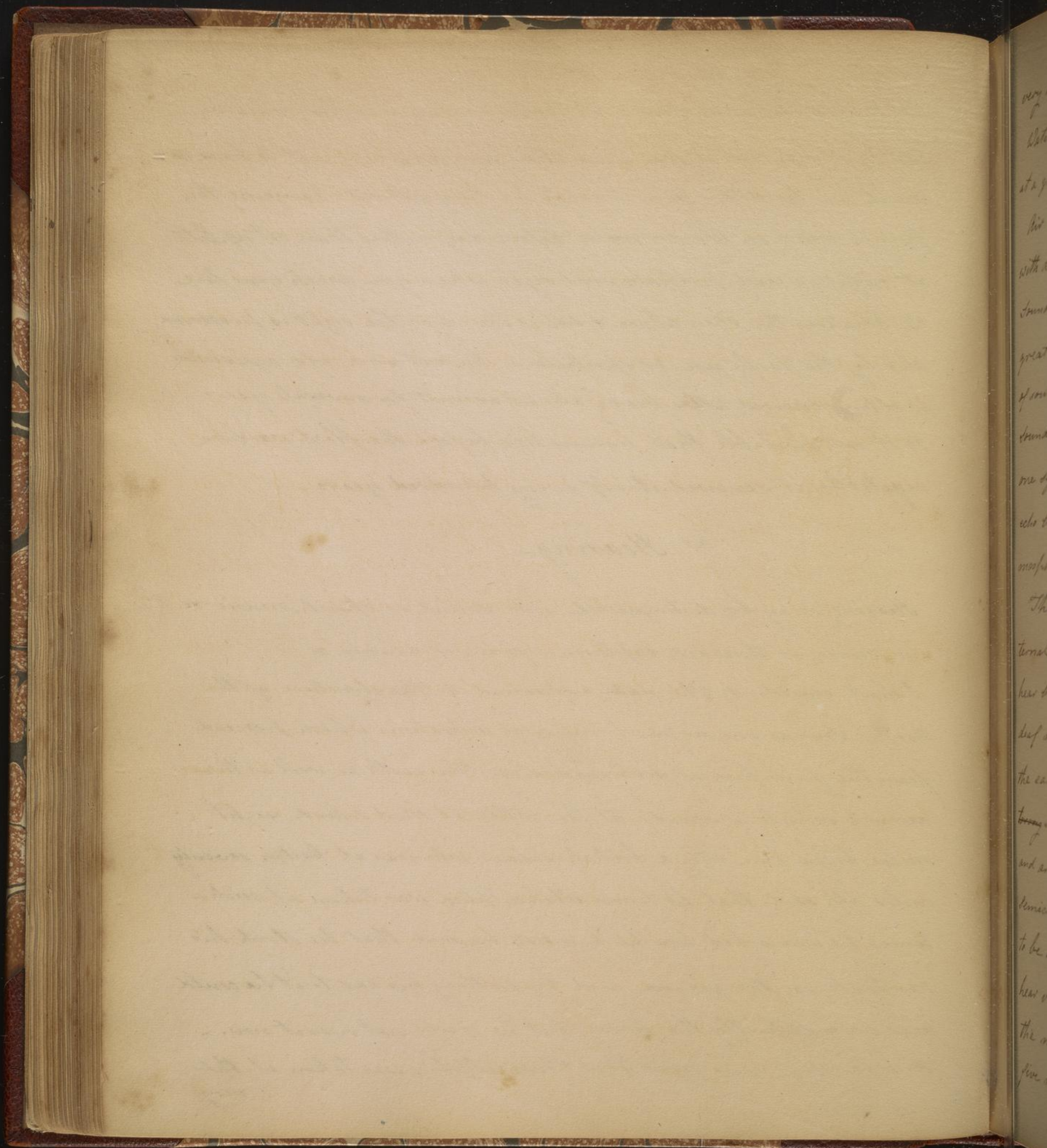


dicularly down upon your book, when reading or writing receive the light sideways or over your shoulder; take care not to have too much nor too little; do not read too long without changing the point; read in the morning before day rather than sit up late at night; avoid pressing your eyes when you wash your face. By blacking the skin above & below the eyes the sight is preserved, also by the early use of spectacles. In extreme old age vision is often renewed after being almost extinct for several years. - Is it not probable that human life before the flood was like vegetables, it renewed itself every hundred years -

Of Hearing

Hearing may be distinguished into sound, as speech, music &c. and noise as thunder, explosions, firing of cannon &c.

I shall consider 1 The nature of sound. 2 The structure of the ear. Sounds are certain tremors or vibrations which proceed from the percussion of sonorous bodies. The earth as well as the air is a vehicle of sound. at the battle of Mud Island eight miles below this city, a British soldier who was at Canton seventy miles off, said that he knew Philadelphia was taken at such a time; he was asked how he knew it; he said that he stuck his penknife in the ground, and by putting his ear to it he could hear very distinctly the firing, but he could not hear it now. - A few days news came that Philadelphia was taken at the
very



very time which the soldier had specified -

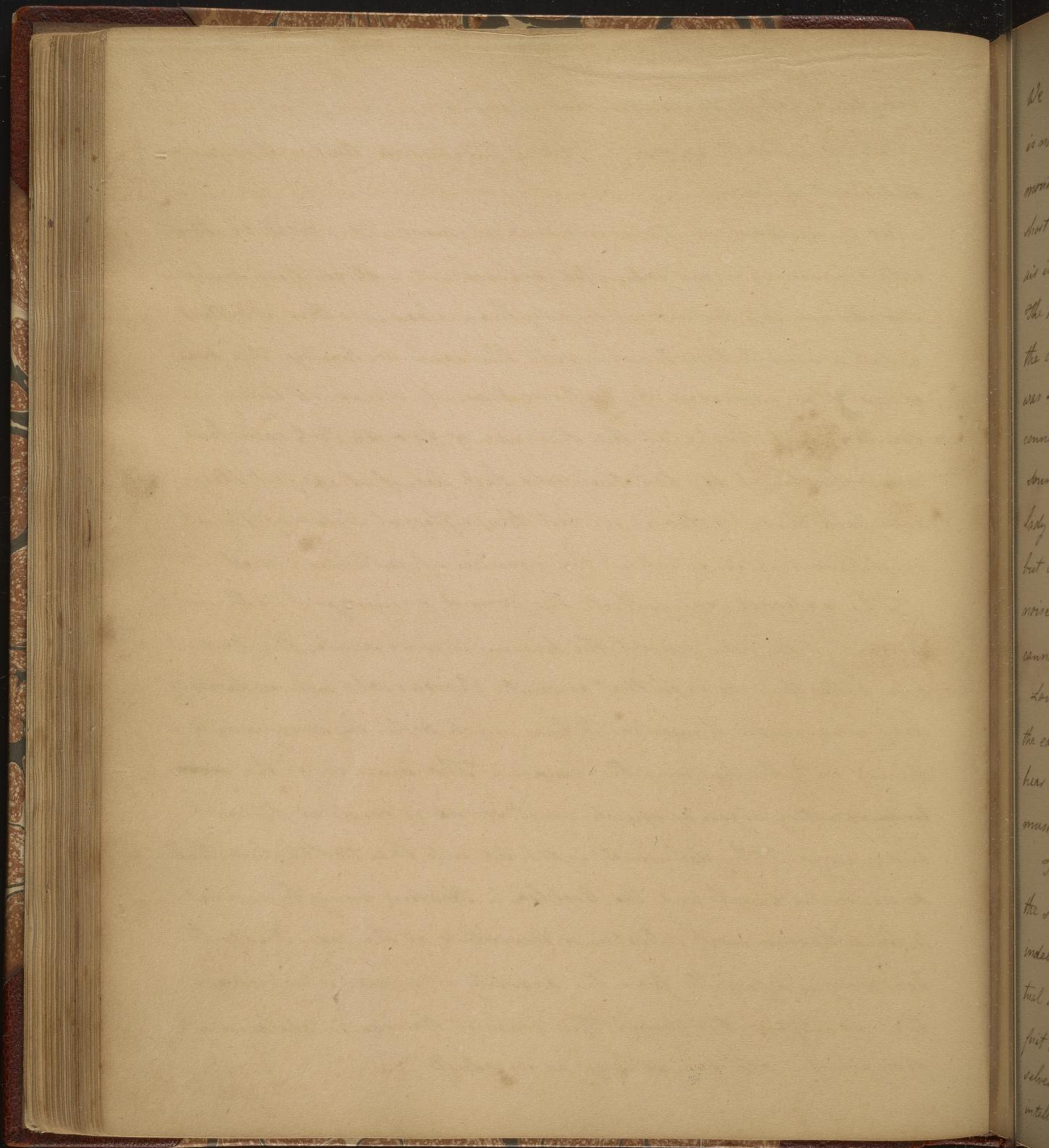
Water is a vehicle of sound. many persons can hear a ship sailing at a great distance.

Air is necessary for the conveyance of sound. If a bell be struck with a hammer in an exhausted receiver, it will emit no sound. Sounds are less distinct in cloudy than clear weather; whether great or small they travel with the same velocity. The force of sound is increased by passing through spiral holes. -

Sounds which strike at the distance of 63 or 64 feet, echo back one syllable, at 127 feet they echo back two, if at 190 feet they echo back three syllables &c. but the different states of the atmosphere has an effect on the number of syllables echoed. -

The external ear collects the sound & conveys it to the internal; if the ear project the hearing is more acute; the Indians hear better than we do on that account. Persons who are moderately deaf may enable themselves to hear much better by surrounding the ear with the hollow of the hand - The inner ear is the ~~secretory~~ ~~secretory~~ secretory organ of speech, in it sound is rendered distinct and arranged. The Labyrinth is divided into the Vestibulum, three semicircular canals and the Cochlea - Hearing may be defined to be a harmoniacal vibration or trembling of the ear. Infants hear very indifferently from the quantity of mucus which covers the membrana tympani. The bones of the ear in children of five months old are as large as in adults -

We

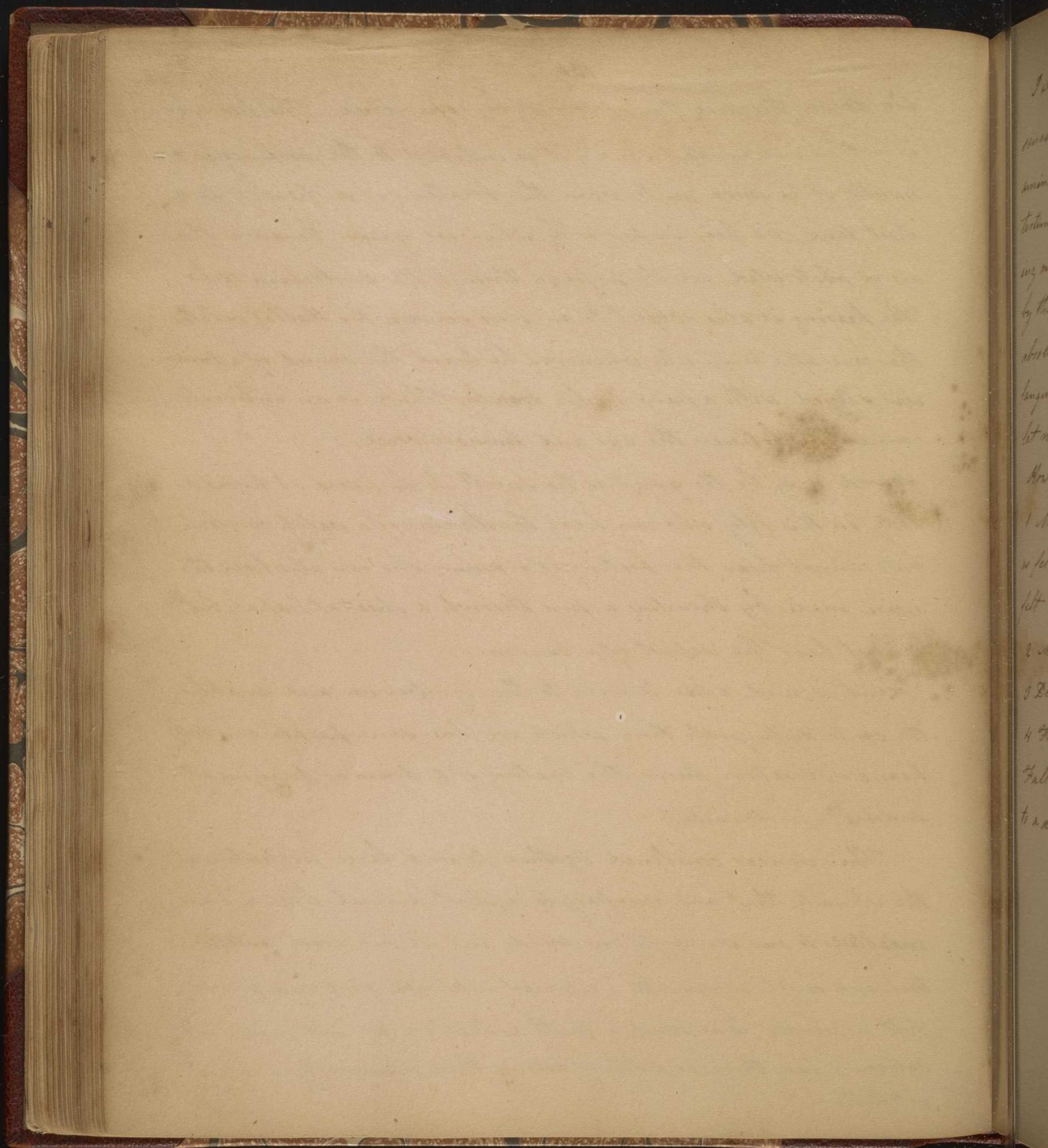


We learn the direction of sound by experience. The hearing is not an independent sense, it is indebted to the nose, eyes & mouth, it is more acute when the breathing is suspended for a short time. We hear imperfectly when we yawn because the air is obstructed in its passage through the Eustachian tube. The hearing is also subject to an error sensus. Dr Haller relates the case of a man who whenever he heard the sound of a drum was seized with a pain in his bowels. There is an intimate connection between the ear and human voice -

Sound may be too great or too small to be heard. I know a lady in this city who can hear the ticking of a watch or clock but cannot hear the beating of a drum; she can also hear the noise made by thrusting a pin through a sheet of paper, but cannot hear the report of a cannon.

Low sound adds tension to the tympanum and enables the ear to distinguish those which are low; some people can only hear conversation during the beating of a drum or playing of musical instruments.

The senses combined together form a large proportion of the stimuli that are necessary to support animal life. We are indebted to our senses for our minds and all our moral, intellectual and social enjoyments. "Nihil est intellectu, quod non prius fuit in sensu" is as much a truth as that we did not make ourselves. Where there is a loss of hearing there is generally a loss of intellect -



I wish you Gentlemen, to always recollect the dependence of the senses on each other; by depending on one of them alone in examining subjects we are very liable to error. The senses, reason & testimony should all be united in our search after truth; depending on one of them has introduced so much error into the world by those absurdly called Philosophers. The sense of touch is absolutely necessary to the correctness of seeing & hearing. In the language of scripture I say "What God hath joined together let no man put asunder"

Now our senses deceive us I shall mention under four heads—

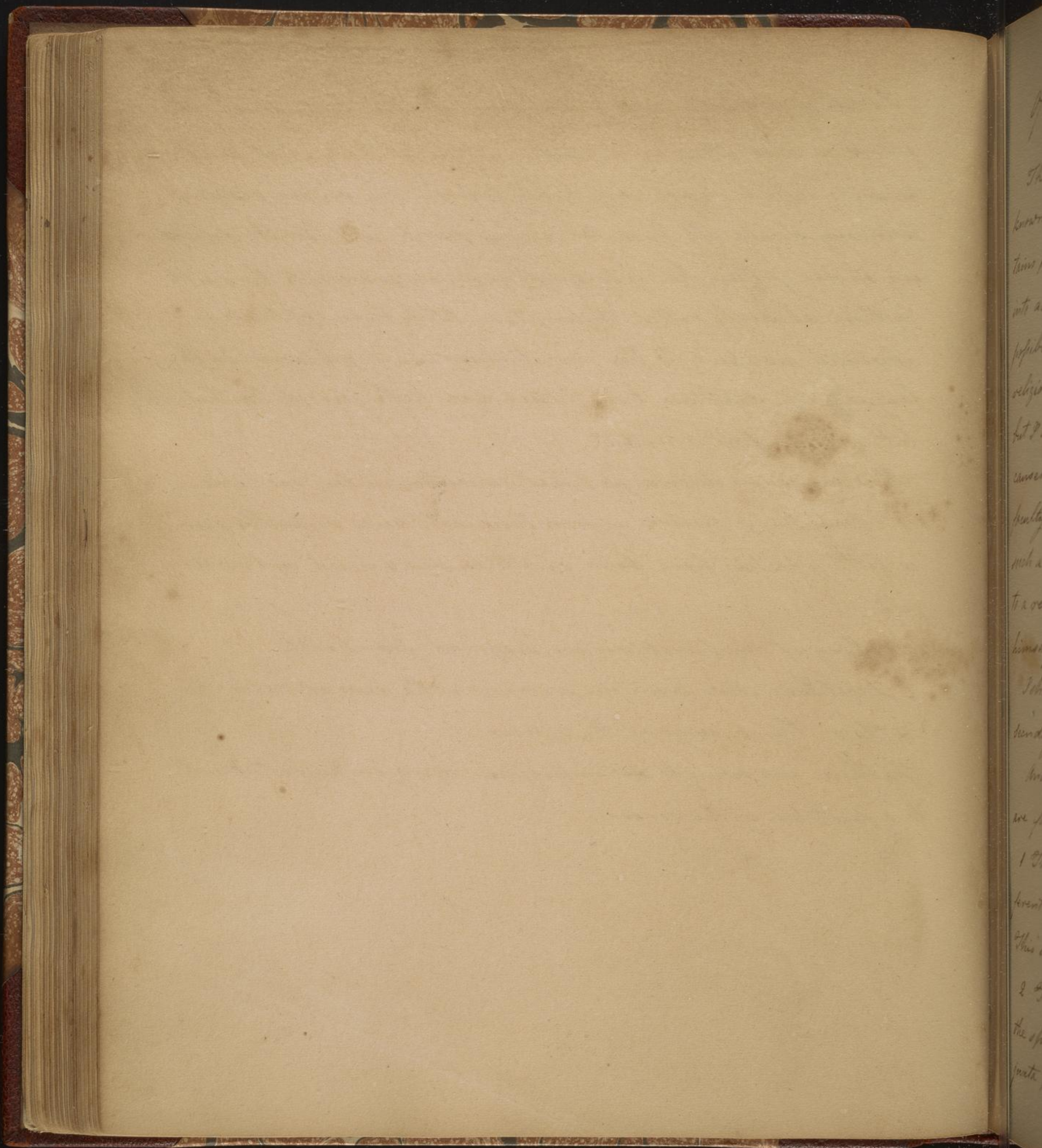
1 Many things deceive us from their not being distinctly seen or felt. Spectres have been said to be seen & heard, but never felt

2 Many of our perceptions are acquired from habit—

3 Deceptions arise from our ignorance of the laws of Nature—

4 From the diseases of the senses—

Fallacies are owing to our impressions being imperfect, & not to a deception of the senses—



Of the Faculties and Operations of the Mind.

The extent of the moral powers and habits in man is unknown. It is not improbable ~~that~~ but the human mind contains principles of virtue which have never yet been excited into action. - I am not so sanguine as to suppose that it is possible for a man to acquire so much perfection from science, religion, liberty & good government as to cease to be mortal: but I am fully persuaded that from the combined action of causes which ~~act~~ operate at once upon the reason, the moral faculty, the blood and the heart, it is possible to produce such a change in the moral character as shall raise him to a resemblance angels, nay more, to the likeness of God himself.

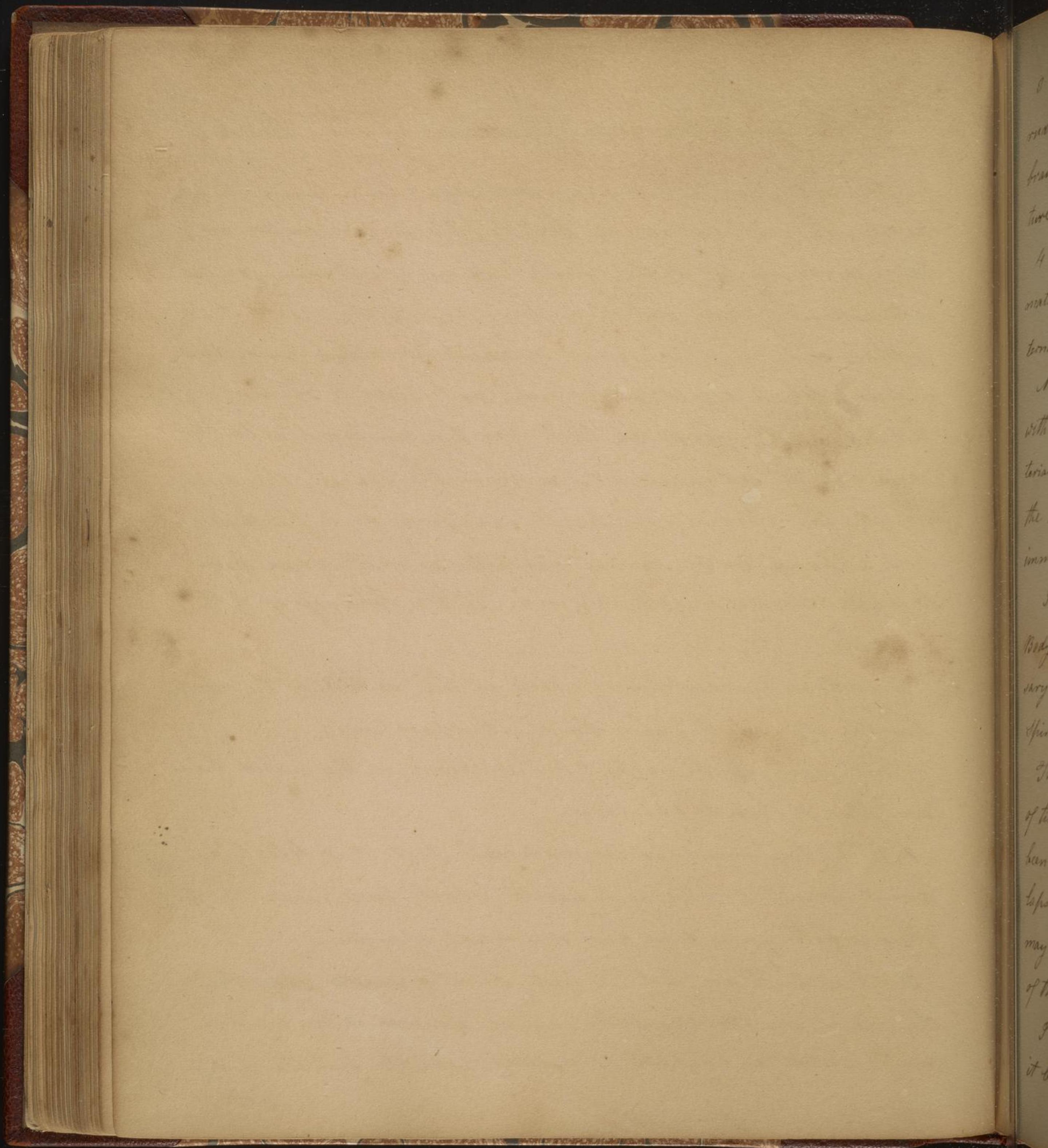
I shall in the first place speak of the nature of the mind, secondly its faculties, and thirdly its operations.

And first. With respect to the nature of the mind there are four different opinions.

1 That the mind is immaterial, that it is totally different from the body, and exists intirely independent of it. This is both an antient and universal opinion.

2 That there are but two parts, spirit & ~~matter~~ Body, that the spirit is matter exquisitely refined, annexed to the brain in juxta position, and capable of existence separate from the body.

3 That



3 That it is a germ or seed in which are contained the rudiments of the body and mind, which lies dormant in the brain and at the day of judgment rises & forms a new creature

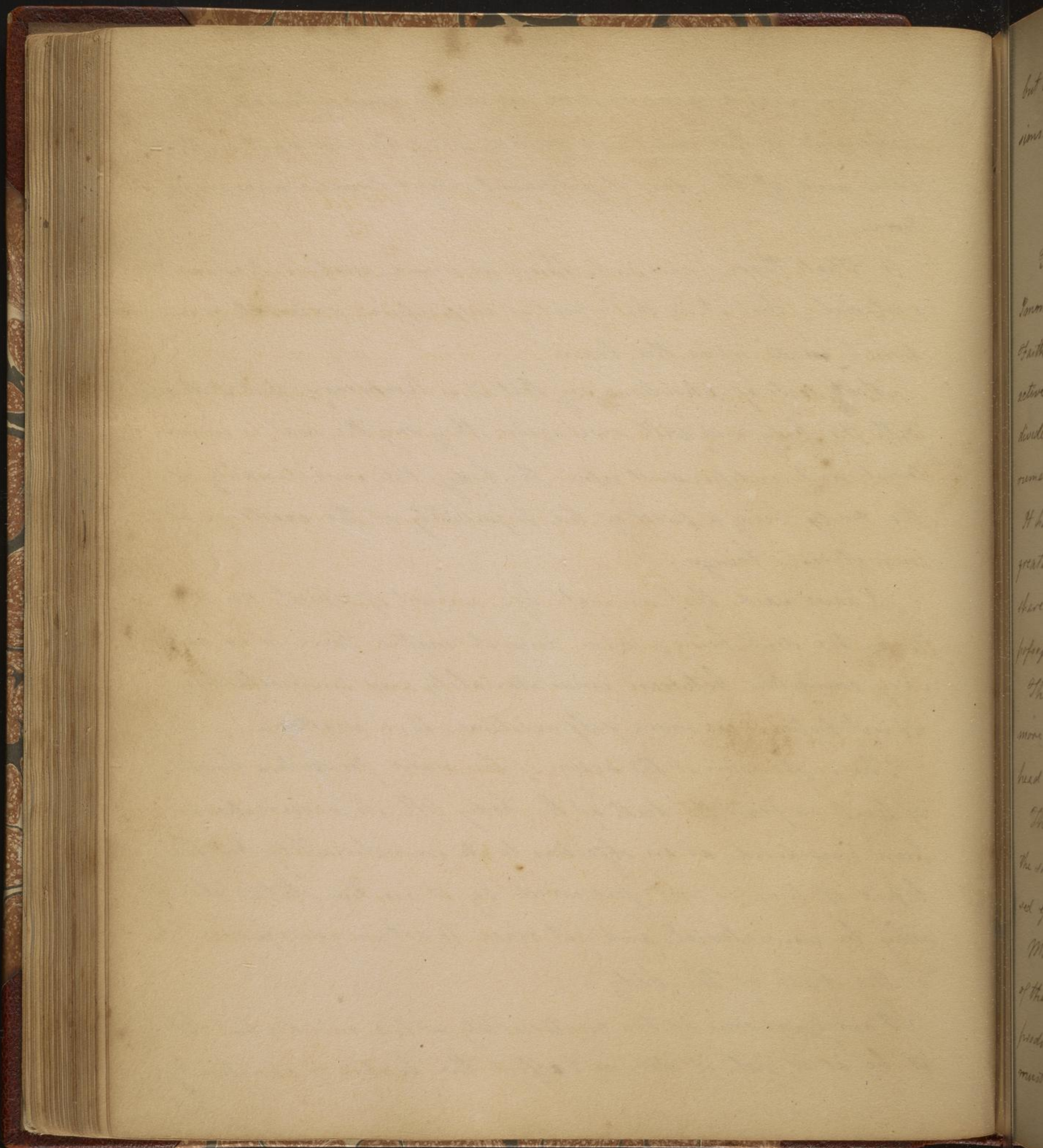
4 That there is no such thing as mind, material or immaterial; but it is the effect of impressions external or internal made upon the brain.

Most sects of Christians say that it is temporary, that it dies with the body and will rise again; they say the soul is immaterial and independent upon the body; the immateriality of the deity being a proof of the possibility of the existence of immaterial beings.

I have said that animal life consist of Spirit, Mind & Body; the soul being a mere animal matter. There is no necessary connection between immateriality and immortality. Spirit proper has no more self existence than matter.

The suspension of the action of the mind for such a length of time as from the death of the body till its resurrection, has been considered as an objection to its immateriality, but the lapse of time is not perceived by it in this state; it may be immaterial and yet cease to act in consequence of the death of the body.

I am in favour of the materiality of the mind; but let it be so or not, it does not affect the truths of Christianity;
but



but in its present state it cannot act except from impressions.

Of the Faculties of the Mind

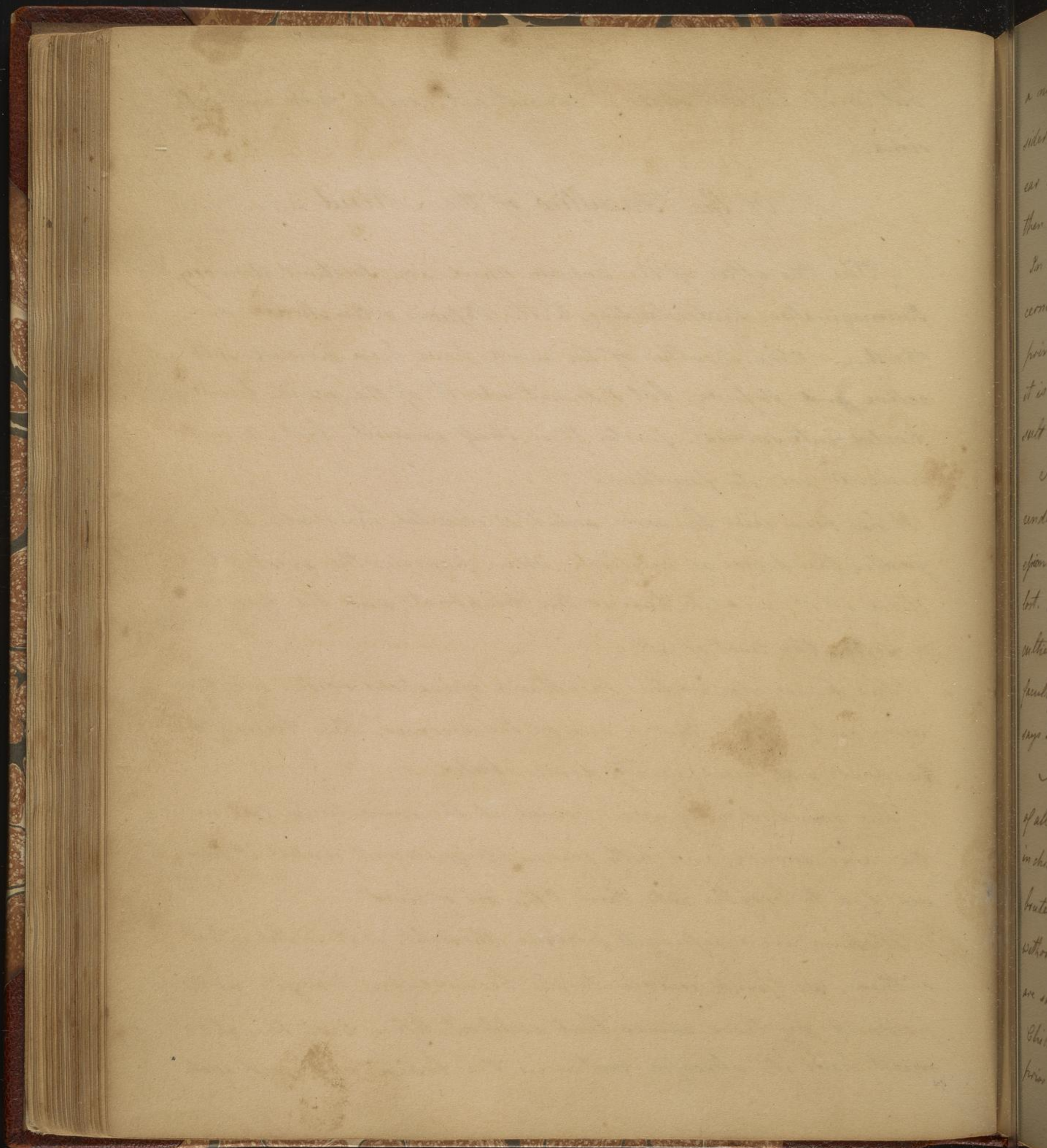
The Faculties of the human mind are, Instinct, Memory, Imagination, Understanding, Will, Passions & Emotions and Faith. The faculties of the mind have been divided into active and passive, but I do not admit of the mind being divided into several parts. It is itself an unit, but its instruments are its faculties.

It has been said the more arched or elevated the skull, the greater the degree of intellect. Man possesses the greatest share of it, next to him is the Elephant, and the Goose possesses the least of all.

The knowledge of the faculties & operations of the mind is more certain than that of any of the sciences; the bones of the head are not more easily demonstrated.

The mind & body were formed at the same time, cast in the same mould, and both remained quiescent until it pleased God to breathe into them "the air of lives"

Motions are necessary to produce thought, or it is the effect of them. We think involuntarily because our thoughts are produced by those causes that support life. Each thought must have its specific motion in the brain, nor need such



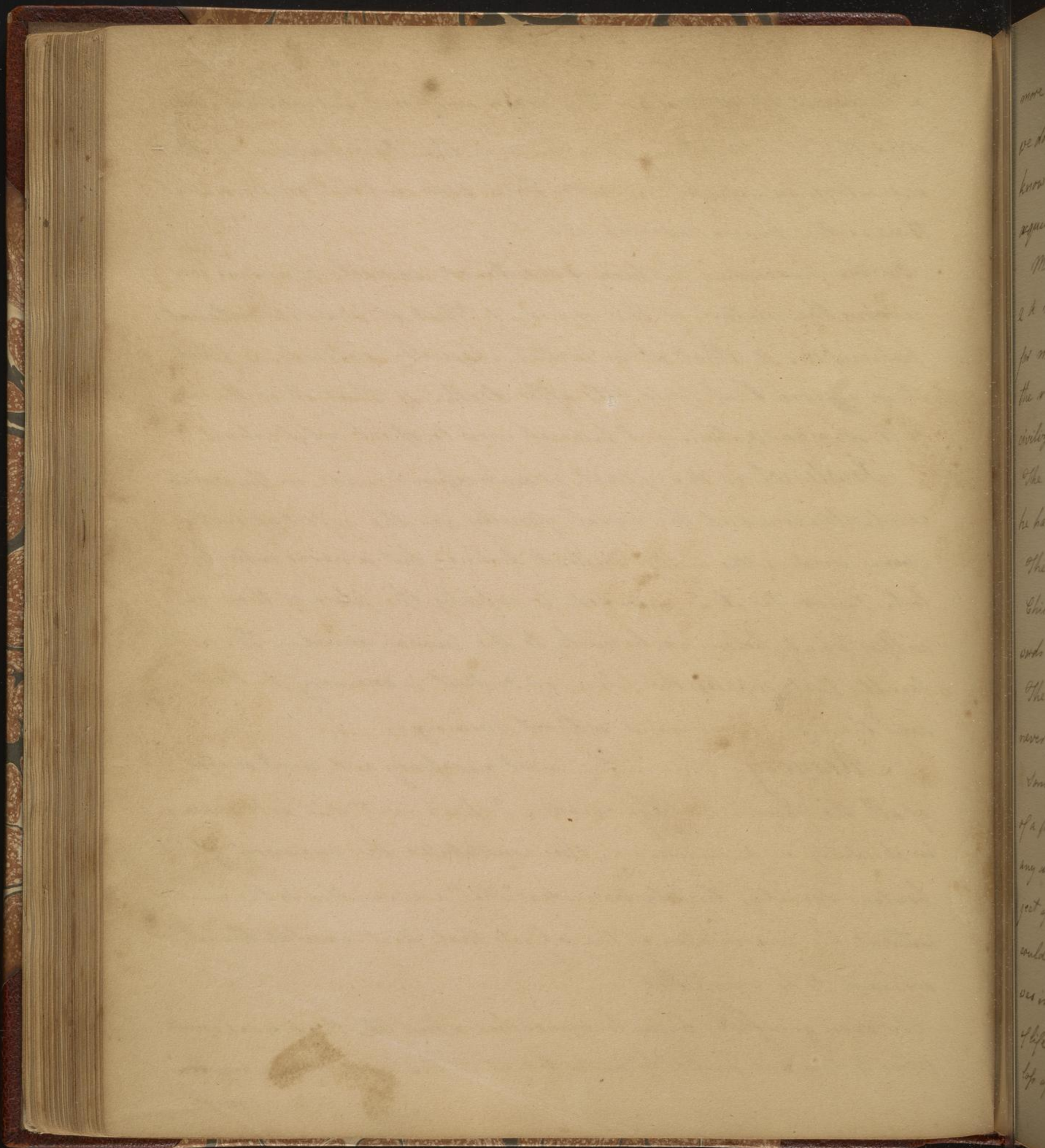
a number of motions in the brain surprise us when we consider the comparative smallness of the tympanum of the ear which is capable of more than 5000 distinct motions: what then is the brain capable of -

In the preceding Lecture I mentioned several opinions concerning the nature of the mind. 1 That it is an immaterial principle. 2 That it is matter exquisitely refined. 3 That it is a germ that puts forth after death. 4 That it is the result of organization. - I proceed now to speak of Instinct.

Instinct is the effect of impressions made in the womb, understanding and the moral faculty are the effect of impressions made after birth. Instinct declines but is never entirely lost. In brutes it is intended to supply the place of those faculties which belong exclusively to the human mind. The first faculty that supplies the place of Instinct is memory. Dr Hartly says there can be no mind without memory -

Memory. This is the most necessary and most useful of all the faculties of the mind. I speak first of it as it appears in children or Reminiscence, this constitutes the memory of brutes. secondly, Recollection; ideas that are recalled to the mind without the presentation of the objects that first excited them are said to be recollected

Children generally begin to remember about the third year, events prior to this, are probably never lodged in the memory. We acquire
more



more knowledge during the first three years of our lives than we do in thirty afterward. Learning languages is not acquiring knowledge, it is only learning new names for ideas previously acquired. ~~the mind~~

Memory is a generic term: there is 1 a memory for faces, 2 a memory for places, 3 a memory for words, 4 a memory for names, 5 a memory for numbers, 6 which exceeds all the rest, a memory for ideas: it is this which distinguishes the civilized man from the savage -

The Rev^d Mr. Whitefield never forgot the face of a person whom he had once seen -

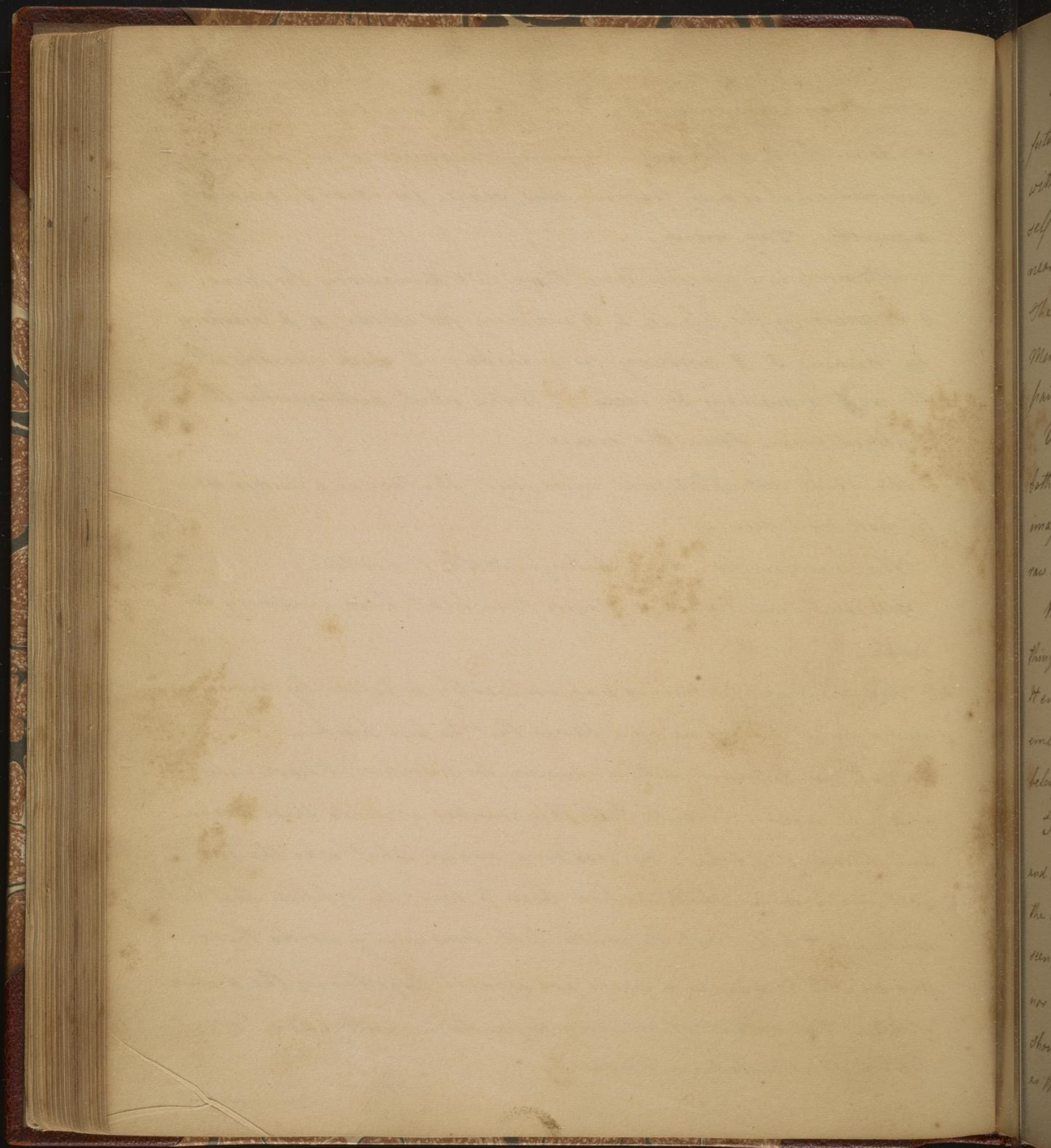
The memory for places belongs mostly to brutes -

Children from nature, & Players from habit have a memory for words -

The memory for names was eminently possessed by Cyrus, he never forgot the name of a person that he had heard -

Some are possessed with a memory for numbers, I have heard of a poor man who could tell the number of words there was in any discourse he heard: he was once asked what was the subject of a sermon which he had been to hear; he replied that he could not tell, but he could tell how many words there was in it - Names & words are soonest forgotten in the decline of life - The extent of memory depends on civilization - The loss of it is called amnesia -

Imagination



Imagination. It differs from memory in embracing future as well as past events: there can be no imagination without memory. It differs from Fancy; Fancy occupies itself in phantasms, Imagination in realities. It approaches nearest to omniscience of either of the faculties of the mind. The productions of the imagination are beautiful & brilliant. Memory may be compared to a history, imagination to a painting.

Understanding. is the faculty which receives impressions both external & internal. It may be compared to a store house; imagination to a toy shop. The memory and imagination furnish raw materials, the understanding arranges them.

Will. It is this faculty that impels us to chuse or reject things; it is most commonly applied to moral good or evil. It embraces intellectual truth through the understanding, and embraces moral evil through the passions. Assent & dissent belong to it. It derives its source from the memory & imagination.

The Principle of Faith. It appears very early in life, and is as much an innate or natural faculty of the mind as the imagination is. It is defined, "The evidence of things not seen", I would add, nor heard, nor felt, nor touched, nor tasted, nor handled, but known only by the operations of the mind. Should this faculty be suspended, the effects would be as bad as the loss of vision or hearing. This principle does not result from

* by Dr. Gale

from experience, but is an absolute law of nature. Our duty to parents depends on it; without it the business of life must stand still. - We believe of necessity. It is a deep seated ~~principle~~ ^{principle} law of nature, a more fruitful source of knowledge than reason or the senses. One hundred men speak truth for one that does not, where interest is not concerned. -

We exemplify this principle by taking medicine, from the faith which we have in our Physician. -

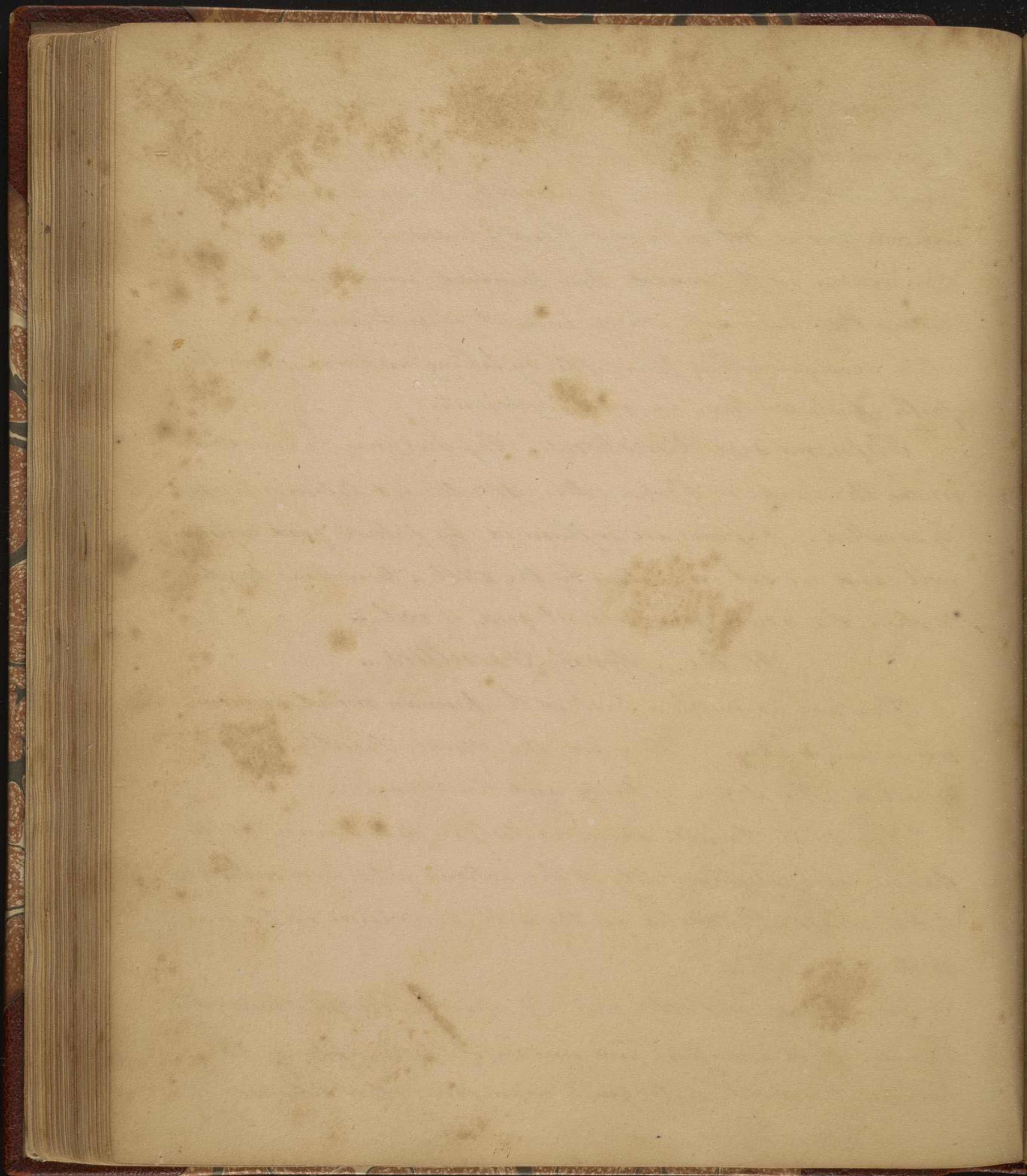
Passions and Emotions. - Passions may be considered under the heads of Propensities, Affections, & Passions properly so called. Passions are influenced by future good or future evil, and are set in motion by the will. Emotions produce motion, they arise from present good or evil. -

Of the Moral Faculties. -

They are as much a part of the human mind as memory or imagination. They are the Moral Faculty properly so called, The Sense of Deity, and Conscience. -

The Moral Faculty exercises itself in determining upon the morality or immorality of the actions not only of ourselves but of others; it is seated in the will, Conscience in the understanding. -

The Sense of Deity, this is properly called the Theosophic Faculty. It is a native and universal principle of the human, it serves to distinguish man from other animals. H



It is
ind
long
finesse
which
Co
gulation
sense
imm
in the
for
the
of the
recept
cant.
may
Ta
further
distance
of the
relation
Per

It is often confounded with conscience which is a distinct and independent faculty of the mind. Man has been defined, "a being capable of religion". Religion is necessary to human happiness. A just idea of the Deity is obtained from revelation which is as necessary to this sense as light is to the eye.

Conscience is a judge, not a law; a regulator, not a regulating rule. It is the sentinel of the moral faculty and sense of Deity. It acts in determining upon the morality or immorality of our own actions, not those of others; it is seated in the understanding. Dr. Clark calls it a perpetual witness for God. The moral faculties differ from the intellectual. the first decision of the moral faculties is certainly right; of the intellectual it is generally wrong, and experience is necessary to correct it. Sensual and parental passions pre-exist, so does the sense of Deity. The faculties of the mind may be translated in diseases of the brain.

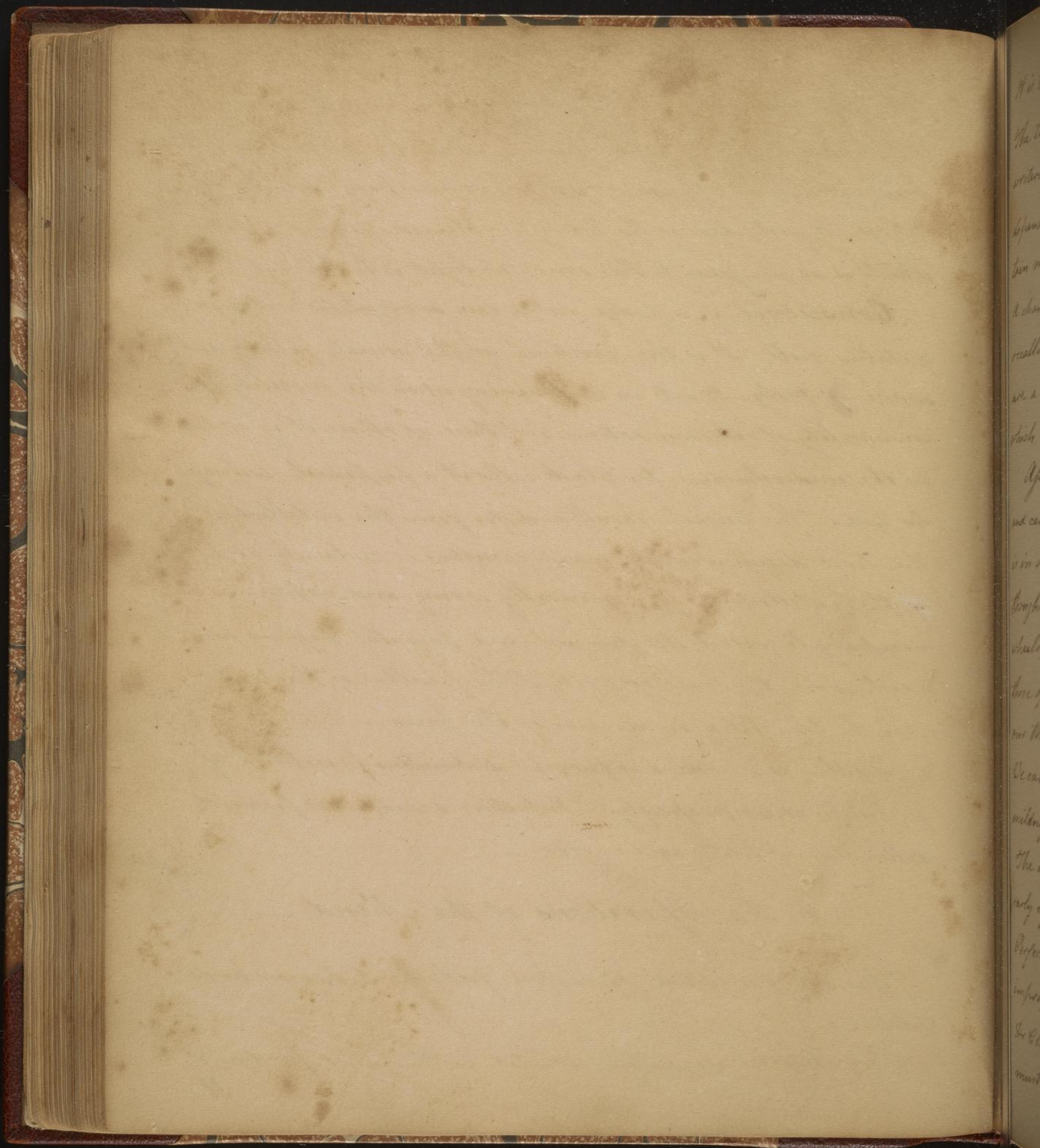
Taste is a sudden or prompt ~~distinction~~ perception of propriety or impropriety. Intuition a sudden or prompt distinction of truth and error.

of the Operations of the Mind

These are Perception, Association, Judgment, Reason and Volition.

Perception, sensations excited in the mind produce it.

It



It is that operation by which ideas are identified or known.

The terms conception or apprehension which are used by some writers, are synonymous with it. The excitement of the mind depends on the stimulus of the senses, it is the effect of certain motions producing impressions and sensation.

A change of perception in the mind is called an Idea. The recalling of ideas or memory depends on association. Thoughts are a combination of ideas. Ideas are raw materials out of which the mind manufactures thoughts.

Association is coherence of thoughts, its laws are uniform and certain; it is the same thing in the brain that sympathy is in other parts of the body. It consists in a single idea or thought setting in motion other or corresponding thoughts; the wheels of thought play into wheels of thought as much as those of a mill play into each other. We are as unable to stop our thoughts as we are to stop the courses of the Planets. We cannot think of the spring without thinking of the mildness of the air, the singing of birds.

The influence of association is very extensive, especially in early life; the art of teaching depends on a knowledge of it.

Perfection of mind consists in choosing proper and rejecting improper associations. It is one of the sources of memory.

Dr Clark says that a man who wishes to become eminent must not only read much, study much, and hear much, but

* These are nearly the proper words of Cicero.

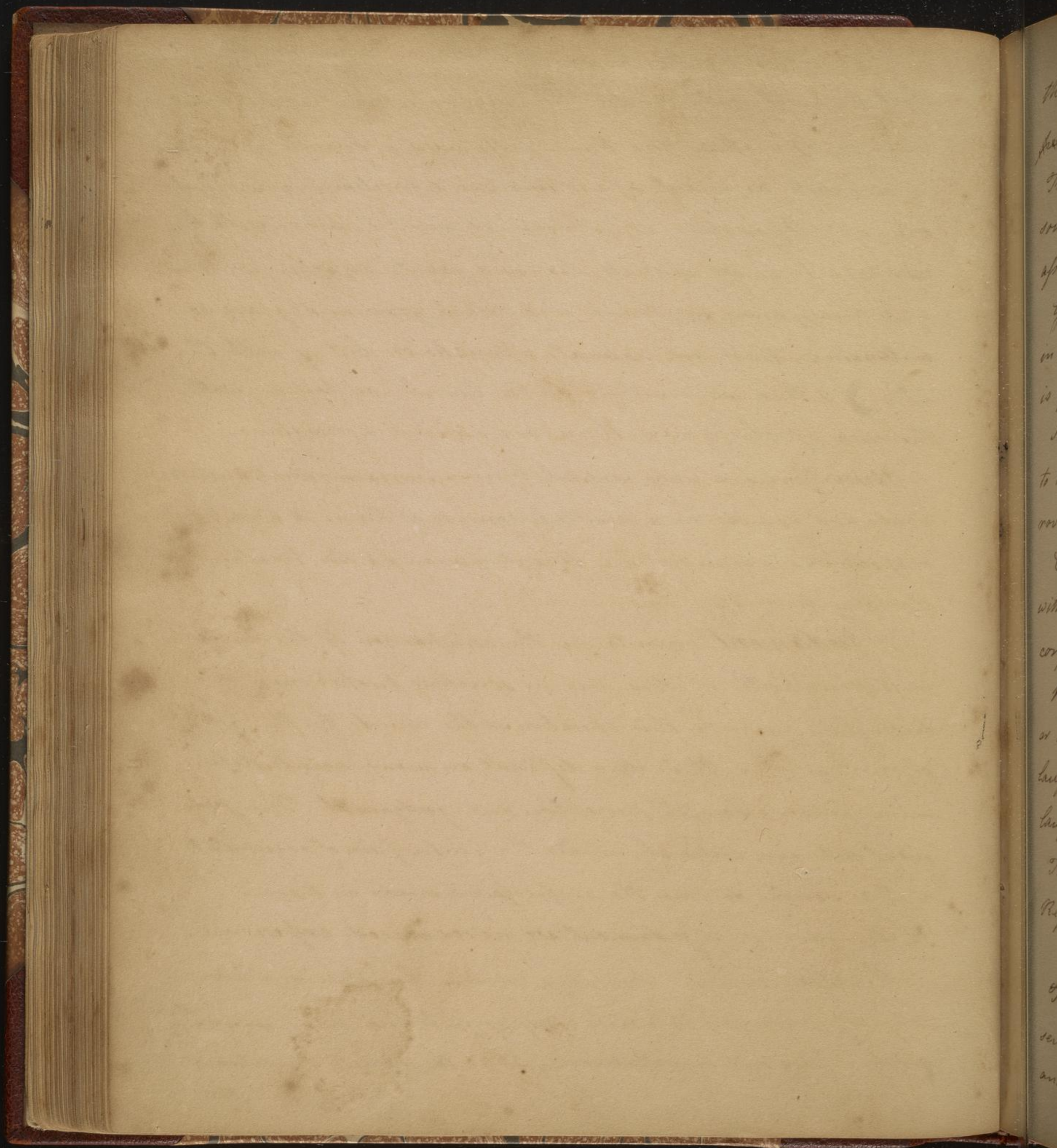
but he must write much. The eyes in writing increase our ideas by association. Mr. Hume calls man a bundle of habits, if by habits he meant associations his deposition is a very just one. Associations are natural or morbid. When with the idea of a tree, we associate leaves & fruit: or when we think of a clergyman we think of a black gown and grave countenance, these are natural associations: but if with the idea of a tree we combine child bearing, or dancing with the idea of clergyman, these are morbid associations.

Associations are very helpful to us in increasing our knowledge. Words and sounds are fruitful sources of them. A knowledge of association is of importance to a Physician in the treatment of many diseases.

Judgment consists in the comparison of the similarity or dissimilarity of ideas, and in selecting proper ones. We distinguish faces by this operation of the mind by the process of comparison. It is very difficult in many cases to determine between simple perception and judgment. The judgment acts as necessarily under the impression of argument, as the senses do from the impressions made on them.

In the exercise of judgment we never exceed experience.

Reason possesses a creative power. In obtaining a knowledge of principles it avails itself of facts and analogies of which it has had no experience. It is the highest operation of the



the mind; from chaos it produces order. It consists in ~~percept~~
 correct perception, related association and sound judgment.

There may be related association with unsound judgment, &
 sound judgment with unrelated associations. Brutes perceive,
 associate & judge, but man alone reasons.

Genius combines related ideas at once, Reason places them
 in their natural order. Genius is Reason with wings, Reason
 is Genius on foot.

Intuition is related to genius; it is generally applied
 to the common affairs of life; it is probably genius impr-
 roved by habit.

Common Sense is a feeling and opinion in unison
 with the majority of mankind, and is more especially
 confined to common people.

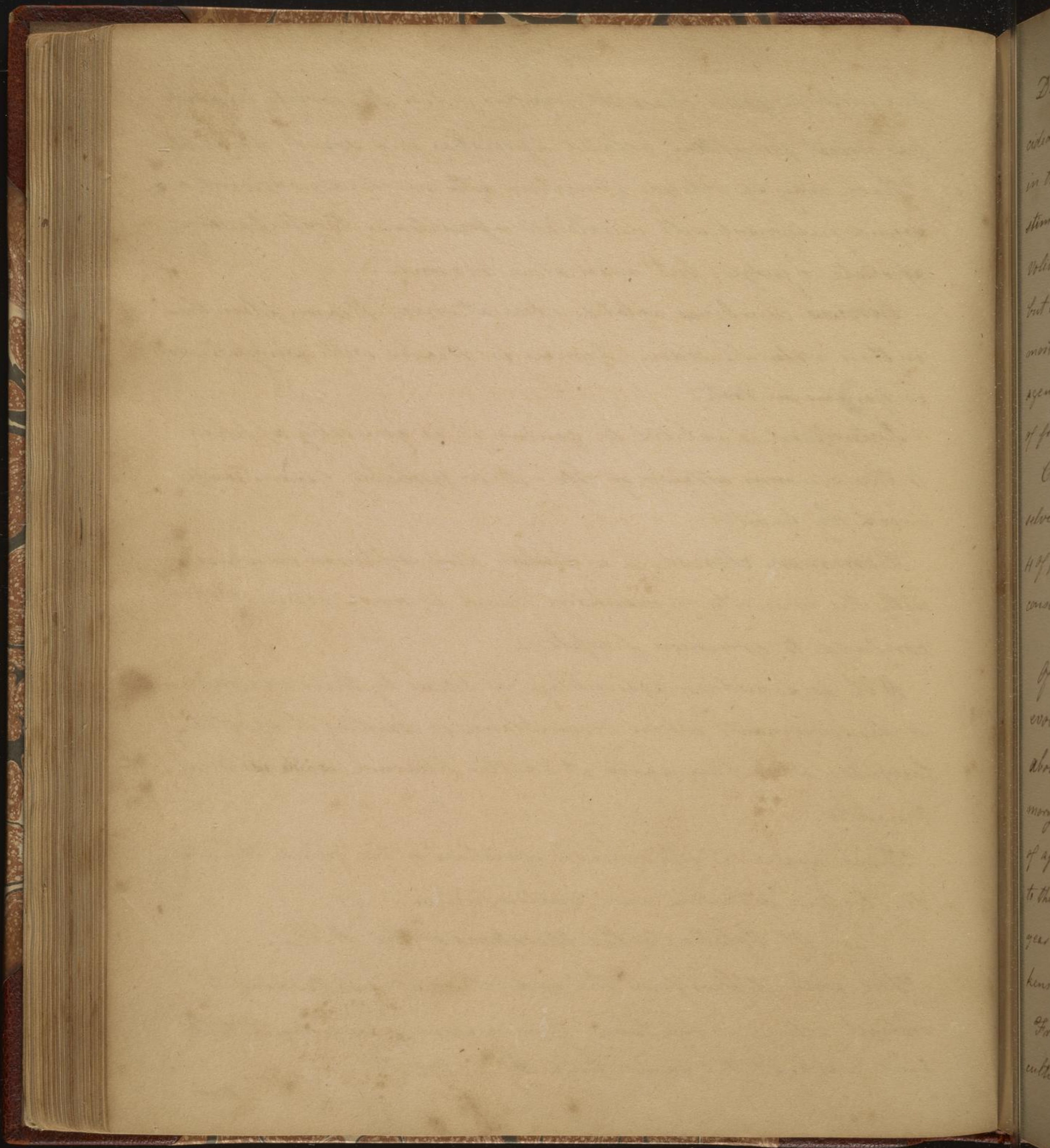
Wit is a sudden assemblage of ideas by their resemblance
 or disagreement; when resemblance is wanting it excites
 laughter; when they agree it excites pleasure ~~exactly~~ without
 laughter.

There are some other minor operations of the mind, they are
 Reflection, Attention and Contemplation.

Of Volition, or the Operations of the Will.

The will differs from the understanding in attending to
 several actions at one time, thus a woman can knit, talk,
 and walk at the same time by habit.

Does

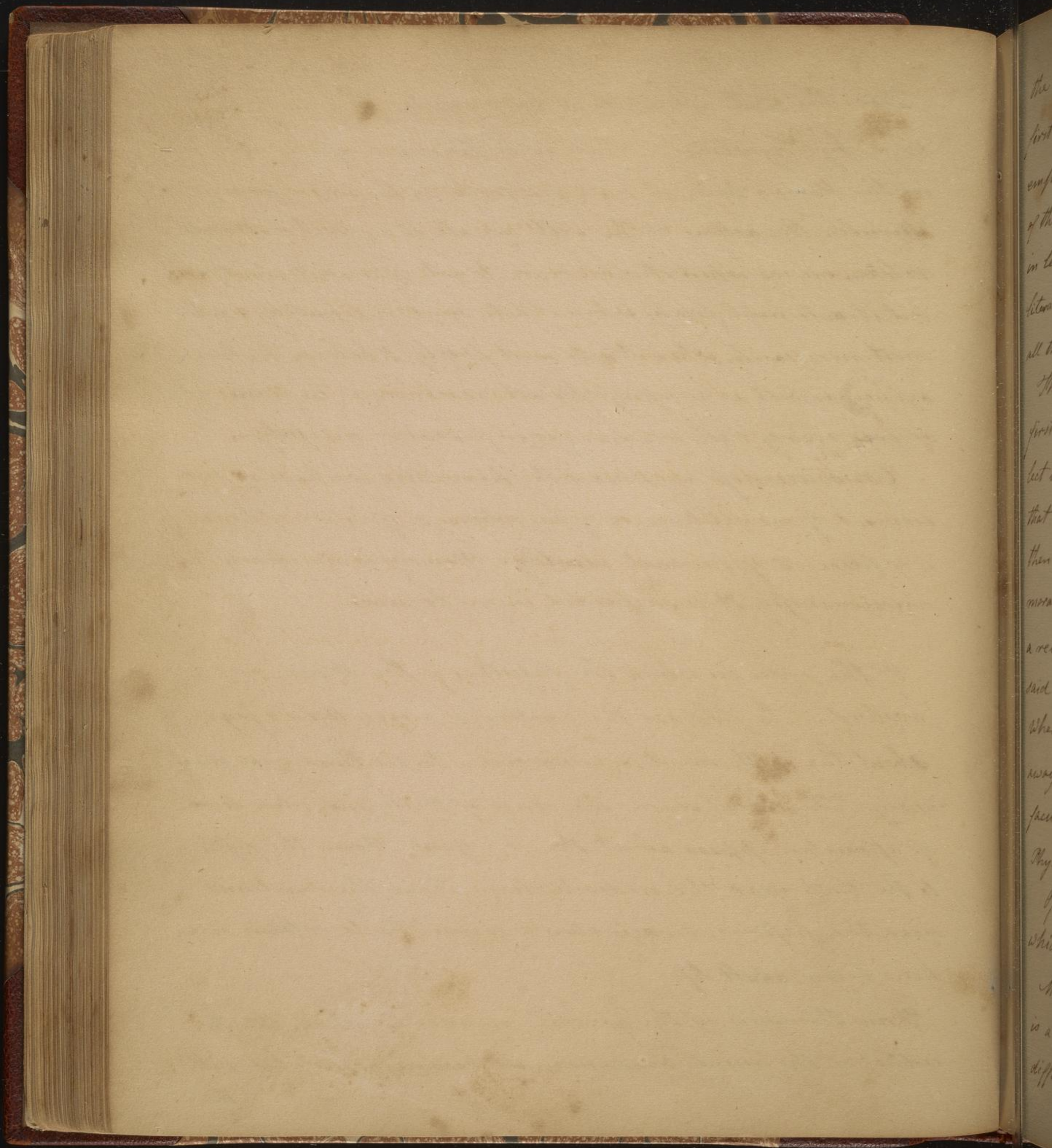


Does the Will act freely or by necessity? This must be decided by Physicians. There is no principle of self motion in the human body, it is all produced by the impressions of stimuli. the actions of the will are all the effect of stimuli. Volition ceases when stimuli cease to act. The will is not free, but it acts most freely when it acts most necessarily, & acts most necessarily when it acts most freely. I believe in free agency as well as necessity, for all reasoning is in favour of free agency & all reasoning is in favour of necessity.

Consciousness embraces the knowledge we have of ourselves, 1 of our existence. 2 of our actions. 3 of lapse of time. 4 of place. 5 of personal identity. Memory is necessary to consciousness. It is suspended in our dreams.

Of the order in which the faculties of the Mind are evolved. The first are the emotions of anger, terror & joy. About the fifth month, reminiscence. In the third year memory. The moral sense, the sense of Deity and some degree of association appears about the year. From the fifth to the tenth year the understanding. From the fourteenth year the passions, imagination, & reason. Taste seldom awakens before adult life.

From this view of the gradual manner in which the faculties of the mind awakened, we become acquainted with the



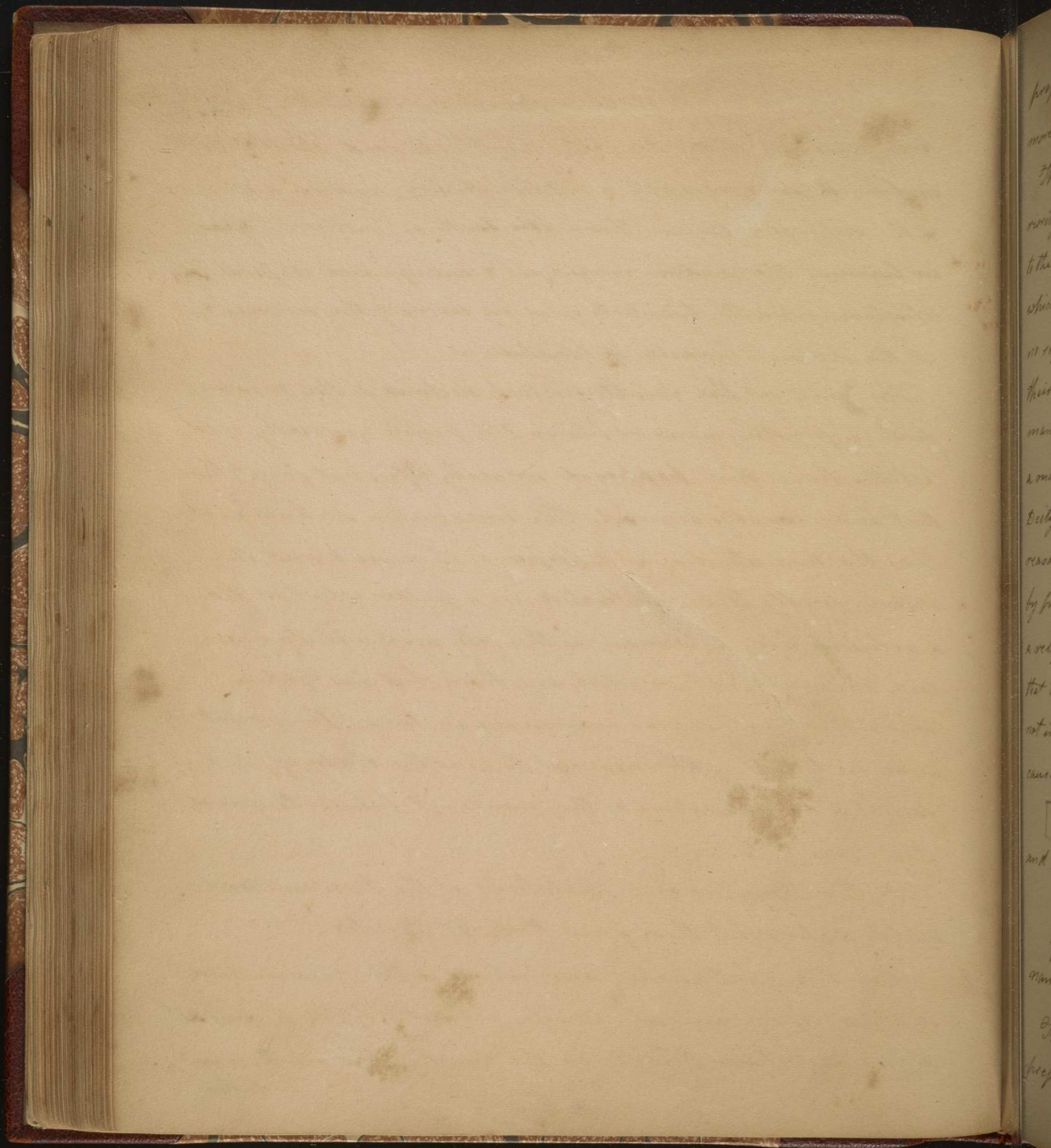
the manner in which children should be educated. The first years of a child's life, after learning to read, should be employed in Geography & Natural History, and in a sense of the Supreme Being. From the tenth or fourteenth year in learning the modern languages, grammar and classical literature; from the twentieth year in learning the sciences & all the different branches of literature.

The first of the faculties which declines is the memory, first in forgetting names & places. Old people generally recollect the things that happened in early life, but forget those that have recently occurred. The imagination declines next, then the understanding and passions. I never knew the moral faculty to be obliterated in a person who had led a religious life, a woman in this city, aged ninety years, said she could not recollect any thing but her God. Where the faculties wear away in one instance, they rust away in ten. I recommend to you the study of the

faculties and operations of the mind; it belongs to you as Physicians

Of the Faculties and Operations of the Human Mind which distinguish them from those of Brutes.

Man is an anticipating animal so is the Beaver. Man is a progressive animal, Brutes are not so. The principal difference between them is in the mind. The mind is in proportion



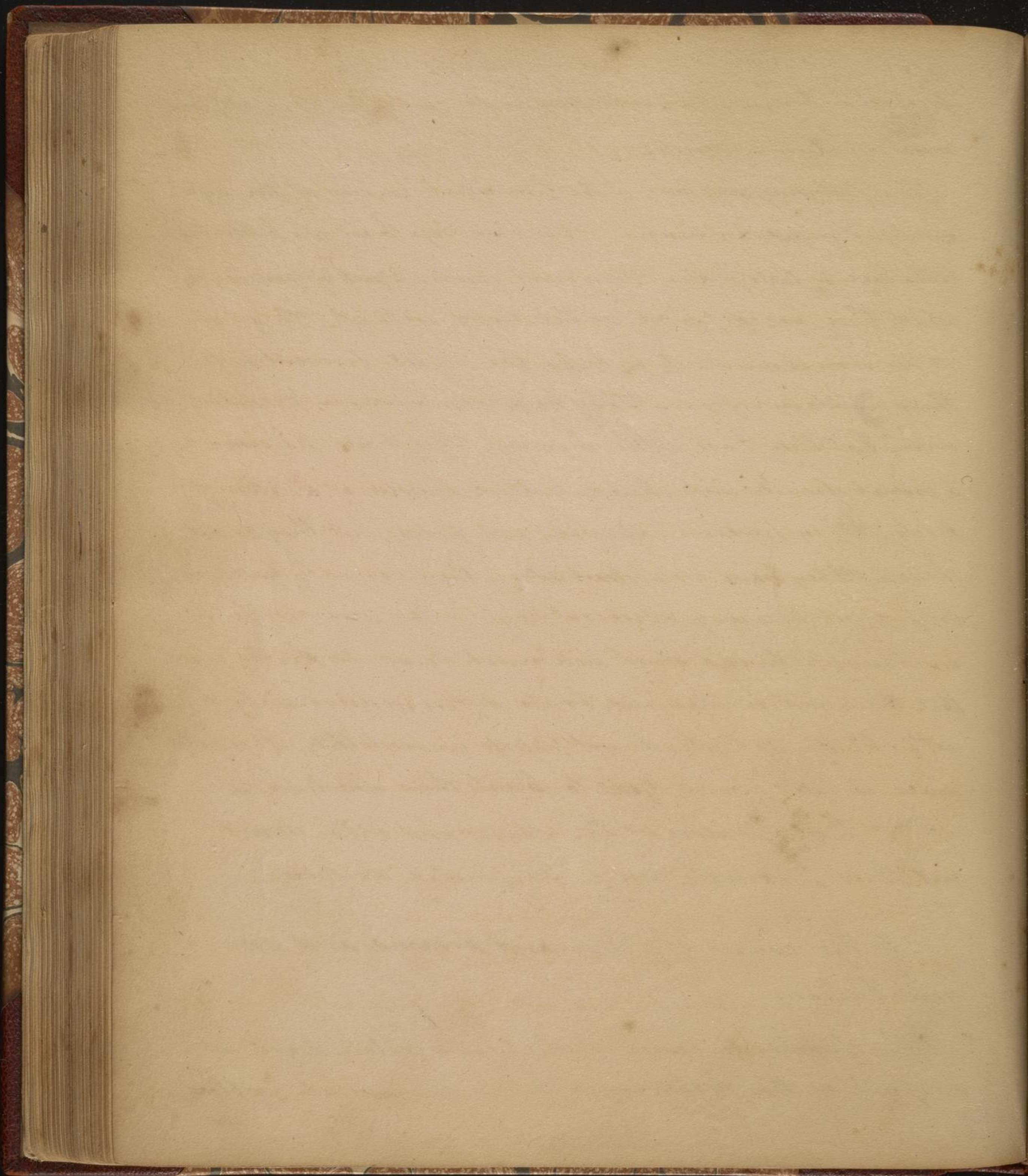
proportion to sensation; man has more sensation and of course more mind than brutes.

The following are some of the principal causes of the inferiority of mind in brutes. They have less brain in proportion to the size of their bodies. They want speech. Want of fingers, by which they are deprived of the sense of touch. They have no signs in monuments or books; the objects presented to their minds are fewer. They have reminiscence exceeding man, but they have little memory. They have passions, a moral faculty and shame, but are devoid of a sense of Deity. They perceive, associate and judge, but they do not reason. They have no abstract ideas, they are only governed by present pleasure & present pain. Man is as necessarily a religious as he is a social and moral being. Dr Hartley says that the mind in man and brutes differs in degree only & not in kind. If brutes do not possess immortality, it is because it hath pleased God to limit their existence.

[Of the pleasures of the senses and of the mind and their proximate cause, see printed Lectures.]

Of the causes of Sleep and dreams, and somnambulism

The proximate cause of sleep is a certain degree of pressure on the brain, made by an accumulation of blood
in



in the
turn
been
cause
discre
+20
of the
stomach
resting
of the
reduce
1 7/8
2 1/2
3. 1/2
4. 1/2
The
super
hick
Wilke
grad
omel
warm
sleep

in the venous sinuses, the nerves refusing to become the instruments of conveying sensation, and the brain of acting. This has been called by Dr Brown the sleeping point. The remote causes act in a relative manner according as the system is elevated above or depressed below the sleeping point which I place at 20° . Wakefulness may be either 10° above or 10° below this point.

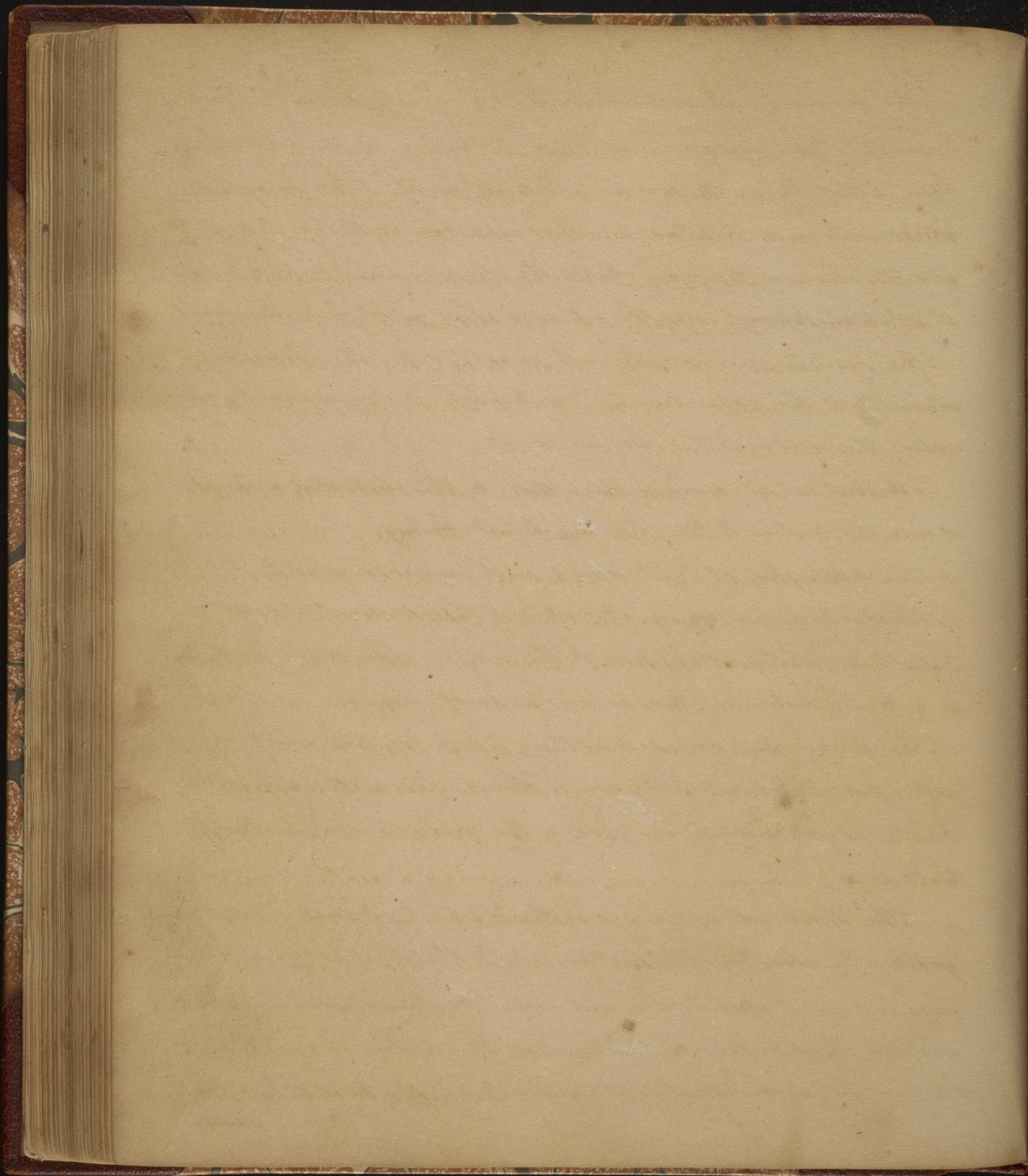
The remote causes are all such as act. 1 By the abstraction of stimuli. 2 By expending the excitability 3 By gradually elevating the system to the sleeping point.

To the first set of causes or those that by the abstraction of stimuli reduce the system to the sleeping point belong,

- 1 The abstraction of light, sound and muscular motion.
- 2 Bloodletting, purging, gratification of the venereal appetite &c.
- 3 Certain substances applied to the body as eider down, feathers &c.
- 4 Cold and certain sedative passions as grief, fear &c.

The second set of causes or those which produce sleep by expending the excitability are, Labour, stimulating aliments, heat, long & painful exercise of the understanding, parturition, Walking, &c.

The third set of causes or those which induce sleep by gradually elevating the system up to the sleeping point, are small doses of opium, tea and coffee certain sounds, moderate warmth, pediluvium &c. Tea, when the system is about the sleeping point, by elevating it prevents sleep, opium has the same



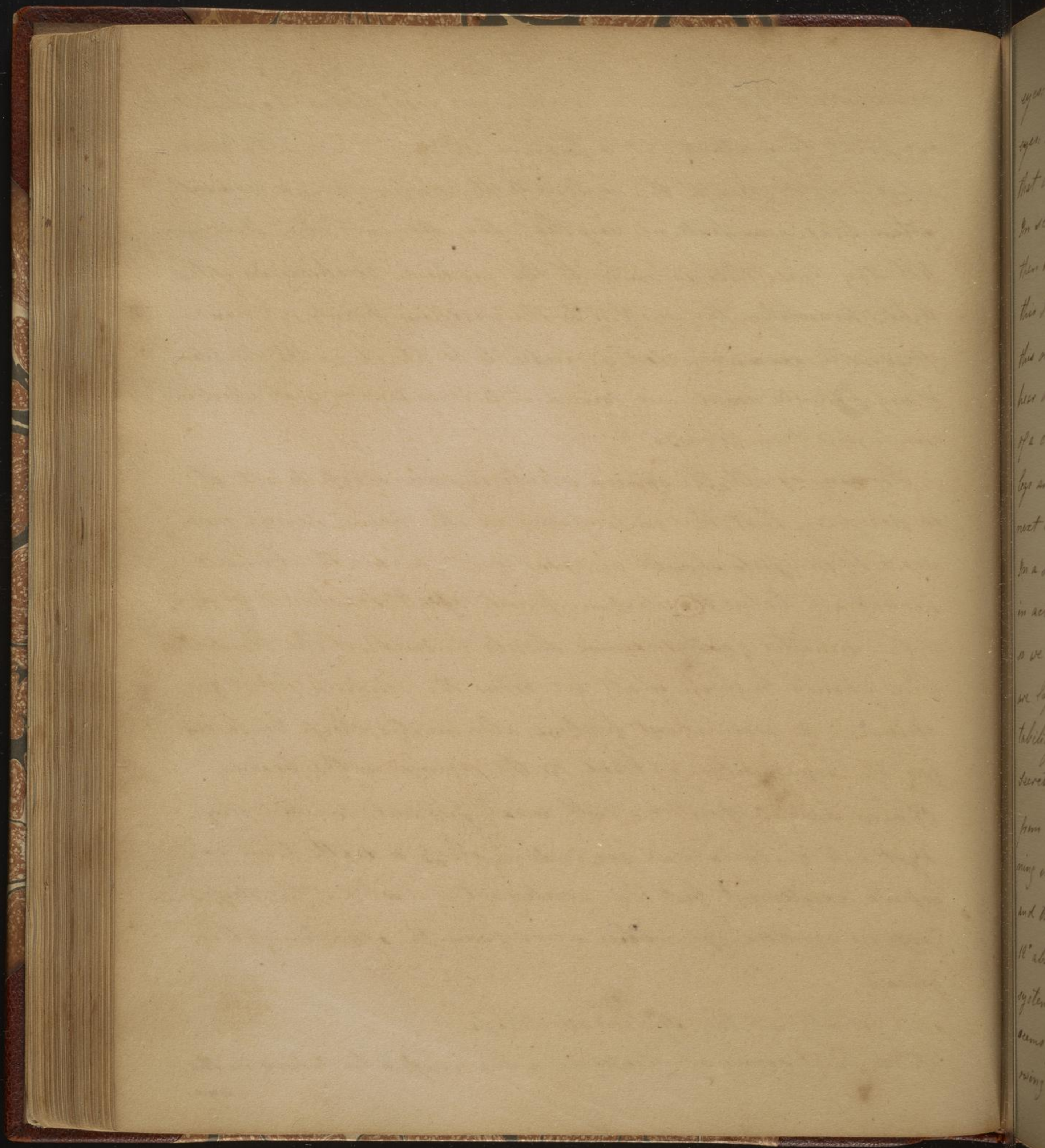
same
ing
value
often
till
light
freque
of my
compr
For
is nece
des. x
move
of the
vine
of him
ing the
Hume
lyot
upine
insp
gues
the

same effect; but when the system is 8 or 10° below the sleeping point, they elevate it & procure sleep. The gentle stimulus of light elevates the system to the sleeping point. You will often hear your patients say that they did not close their eyes till day light, this is owing to the gradual breaking in of the light stimulating the system to the sleeping point. I have frequently recommended a candle to be placed in the fireplace of my patient's room and found it to have a very good effect in composing them to sleep.

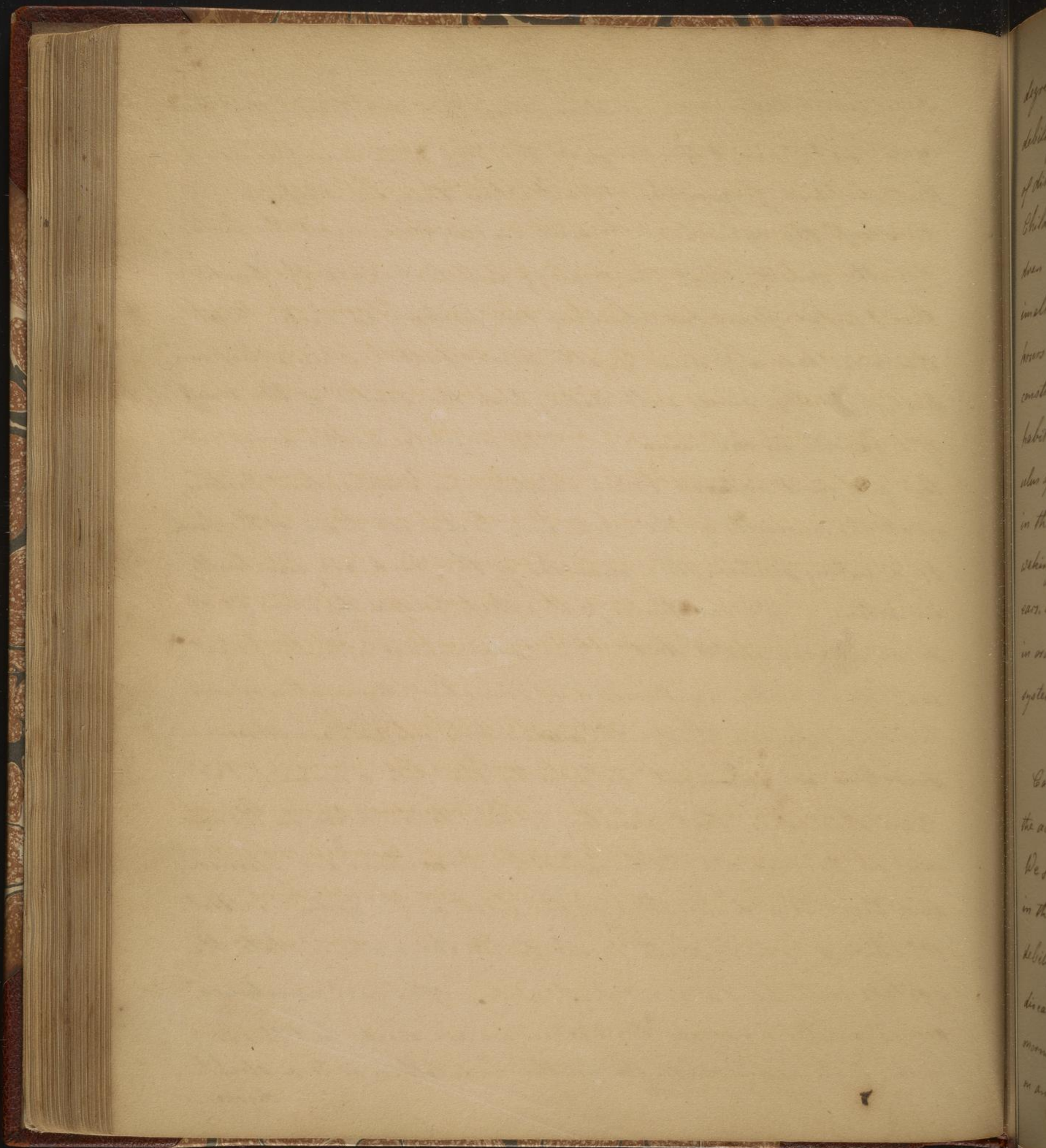
For any or all the causes which induce sleep to act, it is necessary that the impressions on the brain, nerves, muscles, & bloodvessels should be equable. When the brain & nerves are below the sleeping point, *assaetida* should be given; if the muscles gentle exercise should be used; if the bloodvessels wine should be given; if all are below the sleeping point give opium. A recumbent posture also invites sleep by favouring the accumulation of blood in the sinuses of the brain. Opium, ardent spirits & a full meal produce morbid sleep. Azot and Carbonic acid gas induce sleep & death from excessive excitement; but this excitement is morbid. The sleepiness in crowded assemblies arises from the operation of these gases.

State of the System in Sleep.

The first signs of sleep are a heaviness & twitching in the eyes



eyes; hence the reason children when they are sleepy rub their eyes: next pain & weakness in the legs. it is from this cause that children frequently cry out when they are sleepy. In sleep the eyes first become insensible, next the taste, then the smell, next the hearing, and last of all the touch: this I infer from our changing our posture in sleep. But this order does not occur in all, some people, when asleep can hear distinctly; some will wake from the smell of the snuff of a candle in the room. — The muscles of the arms and legs are first relaxed when sleeping in a recumbent posture, next the muscles of the neck, and last of all those of the back. In a sitting posture the muscles of the back are constantly in action. — We sometimes fall asleep suddenly, when we do so we are very apt to start. The phenomena attending sleep are loss of motion, suspension of sensation, diminution of irritability, hunger & thirst. The involuntary motions are slower — secretions are increased especially the bile & urine, it is from this cause that vomiting of bile takes place in the morning in persons of a bilious habit. Excretions are lessened and there is a diminution of the heat of the body. Cold at 12° above 0 induces death in sleep; in the waking state the system will bear a great deal more. The heat sometimes seems greater in sleep than when we are awake, but this is owing to its being confined by the bedclothes, or to a slight degree



degree of disease in the system. We are in a state of greater debility when asleep than when awake, hence the reason of diseases so often making their attacks in the night.

Children require more sleep than adults, and abortive children more than those born at full time. Carnivorous animals require more than herbivorous ones. From six to eight hours sleep in the twenty four are sufficient for almost all constitutions. Sleeping & waking at the same hour depends on habit or what I shall call an association of motions. The stimulus of the morning light, the stimulus of urine accumulated in the bladder &c also cause us to wake at a certain hour. In waking from sleep the mind first unfolds itself, next the ears, we next rub our eyes, stretch our legs, gape, sneeze &c in order to render the excitability equal in all parts of the system.

State of the Body after Sleep.

Consumptive people cough most in the morning from the accumulation of mucus &c in the bronchia during the night.

We should never proceed to any kind of business out of doors in the morning till we have taken food of some kind, the debility arising from sleep renders us much more liable to disease if we expose ourselves to any of its causes in the morning before eating. The Indians always make their attacks on an enemy early in the morning while he is labouring under this

this debility, I never knew or heard of their making an attack at any other time. — Never suffer an invalid to walk, ride or use much exercise before breakfast. The understanding acts most promptly in the morning.

Causes of Dreams

Do dreams always follow sleep? I answer no, they are not necessarily connected with it; some people live all their lives without dreaming. I believe with Mr. Locke that the soul sleeps when we do not dream. However often we dream, we never dream of anything, the raw materials of which have not been before in our senses. "Nihil est intellectus quod non prius fuit in sensu" is an old saying and a very true one. When the excitement of the brain is at 20, mechanical motions alone prevail; but when it is above or below 20. There are mental motions. Partial or excitement or motion, or irregular or morbid motion is the cause of dreams; they are also the effect of an uneasy posture in bed; too many bed clothes, drinking strong tea, light &c. While the nerves & muscles repose in sound sleep, the bloodvessels & brain are moved. — Dreams resemble the ideas of a person in a delirium from fever. Delirium is a higher grade of dreaming & dreaming a lower grade of delirium. Nine out of ten of our dreams are of a distressing nature, & more so when the system is below the sleeping point. We dream mostly of visible objects.

Images

[Faint, illegible handwriting, likely bleed-through from the reverse side of the page.]

[Faint handwriting visible on the right edge of the page, possibly from the adjacent page.]

Images presented to the mind in sleep are more vivid than they are when we are awake. This is occasioned by the abstraction of all the external senses & the suspension of excitement in the brain.

Dreams are most common in the decline of life, they are also most frequent in disease because sleep is imperfect. The morning light is the most frequent stimulus to dreams, hence the reason we so often dream in the morning. Bores frequently dream.

Persons who walk in their sleep are called Somnambulists, those who talk Somniloquists. It is remarkable that those who talk in their sleep seldom if ever recollect their dreams, and those who walk never recollect where they go or what they do. Sound sleep is the perfect annihilation of all the senses.

The Use of Sleep is to restore equal excitement to all parts of the body, it subtracts it from parts not exhausted & restores it to those which are. By equalizing the excitement it removes slight diseases. It favours the assimilation of our aliments. It gives to the mind repose and refreshment, and restores the system to its natural order; without it madness would be universal. It restores the moral faculties.

Take away sleep and Hope and man is the most miserable creature in the world.

The use of Dreams is to support animal life during the hours of sleep, and to dissipate an undue proportion of excitability which is accumulated. They partake of the nature of the stimulus which excites them.

[Faint, illegible handwriting across the page]

He
system
are ou
capacity
interce
in our
Suprem

H
vates
tong
of h
line t
stoma
for a
The
juice
stoma
morb

Of Aliment

We proceed in the next place to consider in what manner the system is recruited; which is by means of aliments & Drinks: these are necessary for our daily subsistence. The advantages of this necessity are to prompt our minds to exertion, and promote social intercourse between nations in order to procure them; and to keep in our minds a knowledge of our necessary dependance upon the Supreme Being

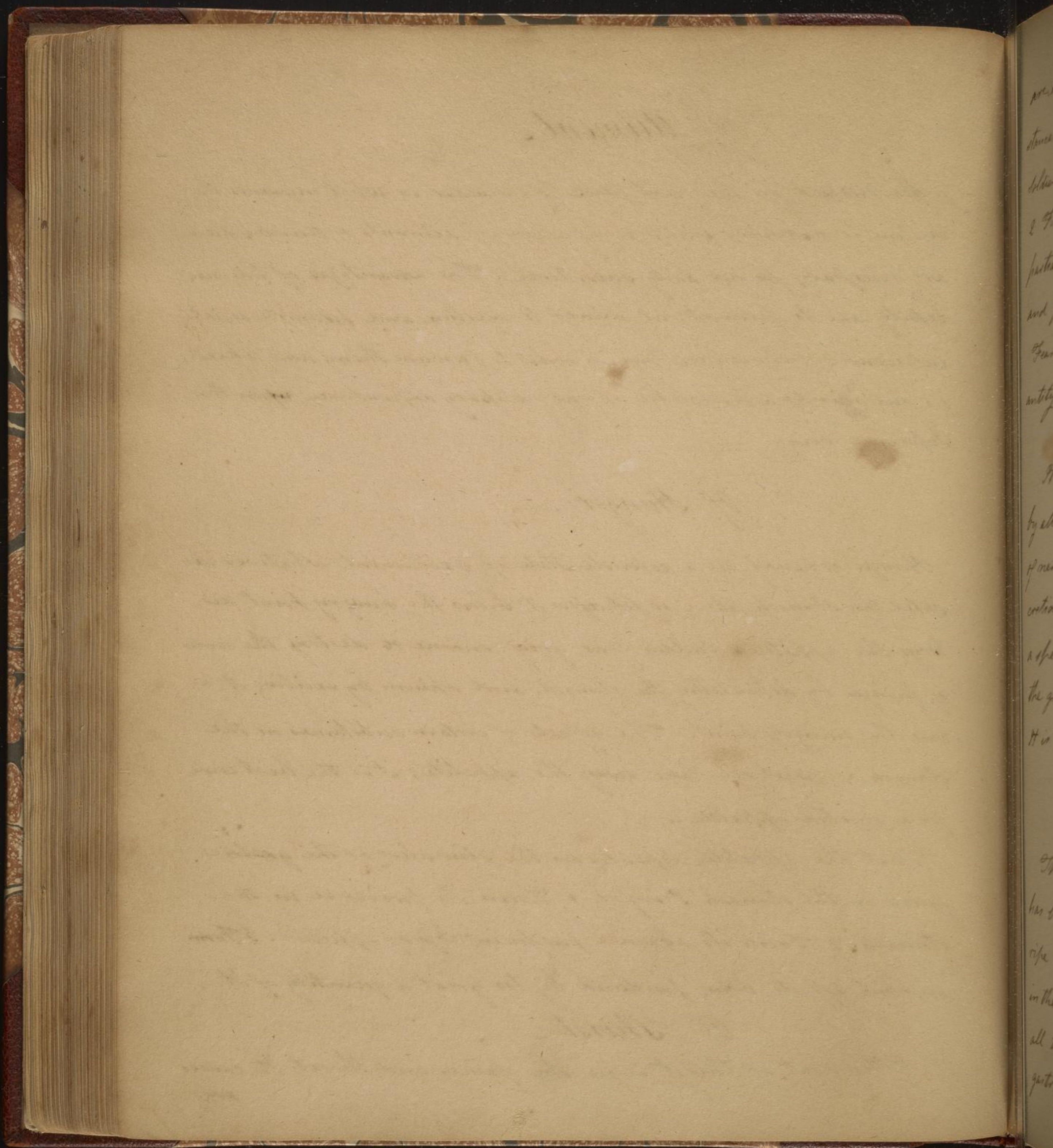
Of Hunger

Hunger depends on a definite state of excitement, whatever elevates the stomach above or depresses it below the hungry point destroys the appetite. Sudden fear, grief, shame &c destroy the sense of hunger by debilitating the stomach, and opium by exciting it above the hungry point. The effects of certain substances on the stomach, as sweet oil take away the appetite; it is the best cure for a morbid appetite.

That the appetite depends on the stimulus of the gastric juice in the stomach I infer 1 From its presence in the stomach. 2 From its absence producing loss of appetite. 3 From morbid effects being produced by too great a quantity of it.

Of Thirst

The seat of thirst is in the fauces and throat. Its causes are



are, all certain state of the fauces. I infer this from certain substances depressing or raising the excitement to the thirsty point—
 soldiers when going to engage in battle generally call for drink—

2 From acrimony stimulating the fauces & throat, it acts both partially & generally, salt meat acts in the former way, ~~the latter~~ and fever in the latter—

Fear, pain, opium &c reduce or elevate according to their quantity or severity, either above or below the thirsty point—

Peculiarities of the Stomach—

It is the most important viscus in the body. It is possessed by all animals except the *Tenia Hydatidea*. It has two kinds of nerves, one pair which is derived from the intercostal for secretion, the other from the *Nas vagum* which imparts to it a specific sensation. Next to the brain the stomach has the greatest extent of sympathy with all parts of the body—
 It is the index to the state of the mind & nervous system—

of Digestion—

The experiments of Spalanzani prove that trituration has but little effect in the process of digestion; he swallowed ripe cherries, currants &c whole, which were again discharged in the same state; I reject putrefaction also; heat & solution are all that is necessary. The agents in solution are saliva & the gastric juice, the latter is the most active, it acts more or less.

and the nature of the thing is such that it is not possible to have a more perfect knowledge of it than we have at present. The only way to increase our knowledge is by the study of the thing itself, and by the study of the things which are connected with it. The study of the thing itself is the most important, and the study of the things which are connected with it is the next most important. The study of the thing itself is the study of the thing in its own right, and the study of the things which are connected with it is the study of the thing in its relation to other things.

The study of the thing itself is the study of the thing in its own right, and the study of the things which are connected with it is the study of the thing in its relation to other things. The study of the thing itself is the study of the thing in its own right, and the study of the things which are connected with it is the study of the thing in its relation to other things. The study of the thing itself is the study of the thing in its own right, and the study of the things which are connected with it is the study of the thing in its relation to other things. The study of the thing itself is the study of the thing in its own right, and the study of the things which are connected with it is the study of the thing in its relation to other things.

By the study of the thing itself, and by the study of the things which are connected with it, we can increase our knowledge of the thing itself, and we can increase our knowledge of the things which are connected with it.

The study of the thing itself is the study of the thing in its own right, and the study of the things which are connected with it is the study of the thing in its relation to other things. The study of the thing itself is the study of the thing in its own right, and the study of the things which are connected with it is the study of the thing in its relation to other things. The study of the thing itself is the study of the thing in its own right, and the study of the things which are connected with it is the study of the thing in its relation to other things.

less in all animals, in the human species the dissolving power is very great; it acts most quickly on food that is well masticated; its greatest dissolving power is when the heat is at 112° . About ten ounces of saliva are secreted in twenty four hours. The presence of nerves is absolutely necessary to digestion; this has been proved by cutting the eighth pair of nerves of a Wolf, as soon as they were cut digestion ceased.

From this view of digestion it appears to be intirely an animal process.

A slight fever generally follows a full meal, occasioned by the stimulus of food acting on the excitability accumulated by fasting, but it is not necessarily connected with digestion nor often taken notice of. A disposition to sleep follows a full meal caused by its producing a degree of pressure of blood in the brain, this never succeeds a moderate meal. The mental faculties are affected by a full meal; when we wish to engage all our powers in any particular effort, we ought not to employ the stomach in digesting a large quantity of food.

There is a disposition to rest after eating, this is favourable to digestion. Dr Harwood gave to two Pinters a certain quantity of food, one was kept running for two hours, the other was kept still; on killing them, in the one that was kept still the food was nearly all digested, in the other it was scarcely begun. The state of the air influences digestion.

Food

[Faint, illegible handwriting, likely bleed-through from the reverse side of the page.]

[Faint handwriting visible on the right edge of the page, possibly from the adjacent page.]

Food generally lies from one to seven hours in the stomach before it is digested, its medium time is from three to five hours. The passions & state of the mind influence digestion, it is invigorated by cheerfulness, and retarded by grief, despair &c

For the function of the Omentum I refer you to the Inaugural Dissertation of my son Dr. James Rush.

Of the Liver

The process of changing chyme or chyle into animal matter is performed by the Liver, in it the imperfectly formed chyle which is in the blood undergoes a second chylapoetic process, it also changes the fat which is absorbed from the Omentum in sickness or during abstinence, into chyle which goes to the nourishment of the body. Emaciation follows disease of glands of supply but not those of waste, which proves the liver to be a gland of supply. In cases of disease of the stomach the liver carries on a digestive process, and when the liver is diseased the stomach acts with double force. Dissection has shewn that in cases where the whole of the liver was diseased the fat of the omentum was not absorbed, but where it was only partly diseased & still able to carry on the chylapoetic process the omentum was found destitute of fat. In diseases where we wish to reduce the system it is necessary to purge in order

[Faint, illegible handwriting in cursive script, likely bleed-through from the reverse side of the page.]

[Faint, illegible handwriting visible on the right edge of the page, likely bleed-through from the adjacent page.]

order to prevent the liver from supplying it with nourishment, in diseases where the liver performs its functions it is sometimes very difficult to subdue the pulse by bleeding alone. Hepatic bile is sweet to the taste —

The Gall Bladder serves as a wastegate to the liver, or a receptacle for the redundant bile. Bistic bile is of an excrementitious nature but exerts an antiseptic effect, it is much less subject to putrefaction than the blood. Pressure of the stomach, when full, on the liver prevents the secretion of bile, but causes the Gall Bladder to discharge its contents. The bile assists in separating fecal matters from the chyle. The fetor that attends discharges from the rectum is derived from the bile.

The swelling of the belly in children which is often attributed to worm, wind &c is frequently owing to a redundant quantity of bile in the liver. The meconium of children is a biliary excretion. Diabetes is the effect of too sparing a secretion of bile or of diseased action of the liver in not separating the imperfect chyle from the blood. The stomach & liver sympathize with each other —

The Spleen is a reservoir for the blood in excessive action of the bloodvessels; in its natural state it contains about 1 lb of blood but it can be distended so far as to contain several pounds. In consumptions it is frequently enlarged from two to five times its natural size.

Connected

[Faint, illegible handwriting on a blank page]

Some
of
more
when
It is
to you
practice
of
as the
to the
when
is the
Hed
out
The
did
little
when
some
white
when
one
of
have

Connected with the spleen in use are the Thyroid and Thymus Glands. The Thyroid Gland serves as a reservoir to the blood & prevents its preasure on the brain when it is impelled toward it by any morbid cause - It is larger in women than men which is necessary in order to guard them in certain diseases to which they are liable, particularly in parturition -

The Thymus Gland I suppose acts the same part as as the Thyroid & Spleen, it acts as a wastegate & reservoir to the blood & prevents its preasure on the lungs in children & frequently in women. A child never spits till he is three years old, he therefore requires more copious - bleeding in catarrh than an adult because he cannot spit out the phlegm -

The Chyle goes to form the Blood, which is divided into Serum, Red Globules & Coagulable Lymph. The latter is absent in the fetus. Blood coagulates in the body - when it stagnates. In venesection the smaller the stream the sooner it coagulates. The most buff is formed when it coagulates slowest as in inflammatory fevers. It coagulates slower when drawn into a narrow mouthed vessel than in a wide one, and when drawn into a wooden vessel, than any other.

The action of the blood vessels must be increased to produce size, it is sizy in the spring, in pregnant women, in
synocha

synocha & synocula states of fever; it is a sign of common inflammation, in higher grades of inflammation it does not appear.

Dissolved blood arises from the violent action of the blood vessels rending & tearing it to pieces. When it is poured into a vessel it ~~looks~~ is of the consistence of tar or molasses, & never separates into its constituent parts. It has been ascribed to putrefaction; but that it occurs from the cause I have mentioned I infer from the violence of the diseases in which it takes place. Take a small quantity of blood from a person in an inflammatory disease, and set it by, in half an hour take some more & place it by the other and you will find the last taken will coagulate the soonest, by reason of the arterial action being diminished by the first bleeding. Or if you give a patient nitre, sal soda &c. it will produce size by diminishing the action of the blood vessels, hence their use in fever. That it does not depend on putrefaction I infer from an experiment of Dr Locket who in a hot bath of 111° became delirious, was taken out & bled, the blood was as much dissolved as in the most inflammatory diseases. It is also dissolved by the bite of the viper, & breathing carbonic acid gas. All the different appearances of the blood are ascribable to different degrees of action of the blood vessels. The buffy coat of blood drawn from pregnant women is owing as I hope to prove hereafter to pregnancy

[Faint, illegible handwriting on aged paper, likely bleed-through from the reverse side.]

[Faint handwriting visible on the right edge of the page, possibly from the adjacent page.]

pregnancy being a disease, parturition is a very violent one.

We are conceived in disease, formed in disease and born in disease. Adhesions form only where there is buff formed.

The coagulable lymph from a diseased person will, under the same circumstances, putrify sooner than that from a healthy person, owing to its being more animalized by the stimulus of diseased action. It is, like bones & tendons, animalized in disease, in health it is only animated. It is a great muscle; it is an unit; poison induces death by destroying its continuity. When a part is destroyed the whole ~~body~~ is killed.

The Serum is water combined with several other matters as Albumen, Gelatin, Carbonate & Muriate of Soda and Phosphate of lime. Its use is to give fluidity to the blood & to dissolve & carry out of the body all saline & other impurities.

The Red Globules are less than the 3000th part of an inch in diameter; when dry they are very inflammable. They receive their red colour from the oxygen taken into the lungs in respiration. In an adult the blood contains nearly $\frac{1}{2}$ of iron. The red globules do not seem to be essential to life, recoveries from disease have taken place where few of them remained in the blood; but good health is connected with them, the redness of the lips, cheeks &c are generally signs of good health. The

[Faint, illegible handwriting on a blank page]

The
cause
any
com
The
of the
their
values
pale
made
system
they
prob
alpha
entre
cons
entig
which
in mo
the
solid
in of

The red globules getting into serous vessels is the proximate cause of inflammation. Bile and excess of salts do not produce any bad effects when mixed with the blood. The lowest computation makes the quantity of blood in the body 25 lbs

Of the Lymphatics.

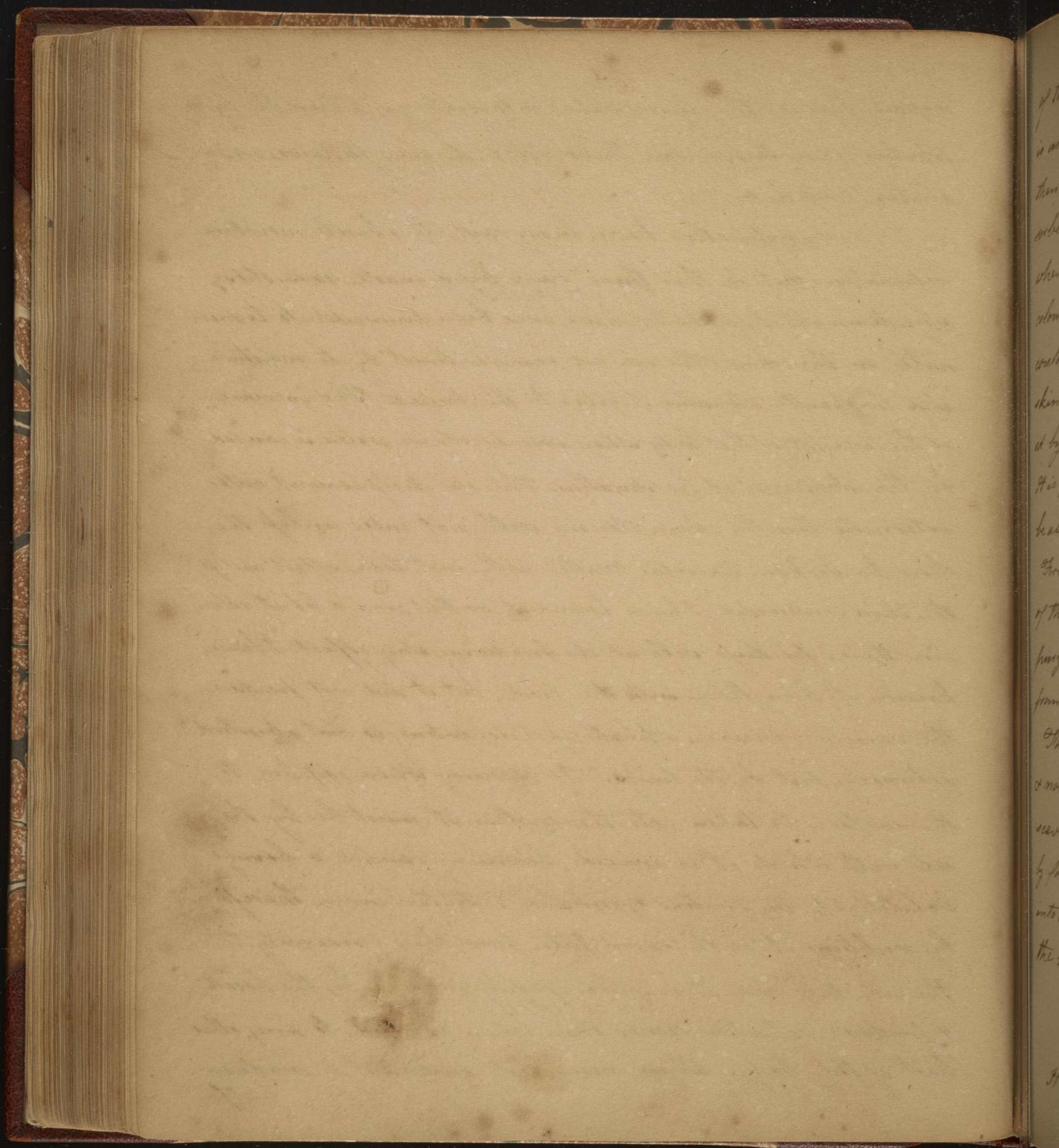
They are a system of small vessels arising from all parts of the body and empty their contents into the Thoracic Duct.

Their coats are stronger than those of the arteries, they have valves, nerves, arteries & veins. They possess a power of retrograde motion. it is thro them that liquids pass from the stomach to the kidneys. Medicines may be introduced into the system by their means without mixing with the blood.

They exist in all parts of the body except the brain, and probably there also, from the absorption of water in Hydrocephalus internus. The Lymph is taken up by muscular contraction of their fibres stimulated by the Lymph; and conveyed to the Thoracic Duct by means of the action of the contiguous arteries, pressure of the muscles &c. The Lymph discharged from the brain & that from punctures in Dropsy is not coagulable. The veins in no part convey or absorb the Lymph. The Lymphatics have a power of absorbing the solid as well as fluid parts. It would seem that they act in opposition to the arteries, the business of the arteries is to repair

repair, that of the lymphatics is to destroy. When the lymphatics cease to perform their office disease follows as Diabetes. Dropsy &c.

The lymphatics have been said to absorb moisture externally, but to this there have been made some strong objections: No lymphatics have ever been discovered to terminate on the skin. The sea air removes thirst by its moisture and the gentle stimulus it gives to the fauces. The increase of the weight of the body when immersed in water is caused by the stoppage of perspiration. The air itself cannot enter externally thro the skin. Poisons will not enter unless the skin be broken. Variolous matter will not take effect unless the skin is wounded; I have found it on the arm & let it remain there for days without its producing any effect. I have known its being taken with the food, but it did not produce the variolous disease. Spirits of Turpentine is not absorbed externally but by the lungs. If Mercury when applied to the surface is taken into the system it must be by the oils with which it is mixed becoming rancid & being volatilized by friction & inhaled into the lungs. Therefore by rubbing it on the arm pits, from their proximity to the mouth & nose it is more readily inhaled by the breath & produces salivation sooner than when applied to any other part of the body. When mercurial ointment is made use of



of to discuss tumours the effect depends on the friction that is used. To remove tumours, first kill them by violence & then let the lymphatics loose upon them. If mercury is absorbed, why should not Isteric emetic produce vomiting when rubbed on the skin. It is to be remarked that the colouring matter of ~~Red~~ Madder is one of the most subtle that could be employed; might it not transude through the skin without the agency of the lymphatics. If it is absorbed by them it is but a solitary objection to a general rule. It is possible that the colouring matter of Rhubarb might be absorbed in the same way.

Friction, exercise, vomiting, purging &c increase the action of the lymphatics. The increased weight of the body after purging is owing to the increased absorption of moisture from the air by the lungs.

The uses of the Lymphatics are to promote the growth & nourishment of the body. They perform the office of scavengers to absorb & clear away all useless parts & imperfectly formed fluids and carry them to the liver to be converted into chyle or discharged from the body without mixing with the blood. The glands assist the liver in this process.

Of Secretion.

It produces a new aggregate. The more opesose the
secretion

[Faint, illegible handwriting on aged paper, likely bleed-through from the reverse side.]

secret
the
life of
the
it
from
stances
other
secret
note
matter
of
mishe
The
juice
you
of
va
is che
twent
myge
meic
Ga
prop

secretion the more unlike the parts of the blood is the secreted fluid, as the semen; and more like some of them when less operose, as the urine. Variolous matter when injected into the blood does not reproduce itself, to produce this effect it must be confined to the skin. The matter which constitutes poison is ~~the~~ in the same proportion in innocent & active substances. The glands perform various offices for each other. The menstrual blood is sometimes during pregnancy secreted by the vessels of the vagina. The stomach may secrete milk by its vessels putting on a new action. Certain matters are absorbed and deposited in other parts.

The Glands may be compared to closets in a well furnished house -

The secretions are Lymph, Saliva, Bile, Pancreatic juice, Gastric juice, Mucus, Synovia, Urine, Semen, Liquor of Prostate, Tears, Milk, Fat & also call a secreted liquor.

The Lymph is coagulable but less so than blood.

Saliva, eighty parts out of an hundred of it are water; it is changed in disease. Twelve ounces of it are secreted in twenty four hours; it assists digestion. It is the presence of oxygen in it that renders it useful in sores. May not mercury change its properties.

Gastric juice, it is the strongest in young & very old people. old people will digest what those in middle life cannot.

x is correct - it is vice versa the oil veg: the
the cheese animals -

cannot, from the greater solvent power of their gastric juice.

Pancreatic juice is of the same nature with the saliva.

Mucus, its use seems to be to defend the parts where it is secreted from the action of acrid & other substances.

Synovia is interposed between the bones in the joints in order to lessen friction, during the day the body is in motion and the synovia is wasted, this is the reason that we are taller in the morning than in the evening.

Urine, it contains many matters. The analysis of Calculi found in the bladder, prove them to differ in composition from each other so much as to preclude the possibility of any solvent being discovered that can be used with any certainty of success. The urine of children contains but little phosphate of lime, it being made use of to form their bones. The kidneys alternate with the skin in summer & the lungs alternate with it in winter.

Semen, it becomes viscid by stagnation.

Milk is secreted from the fresh chyle in the blood. This I infer from its being so soon formed after taking certain kinds of nourishment. It is composed of oil, Caseous matter & whey; the oil is of an animal, the cheese of a vegetable nature. Milk is seldom or never the vehicle of communicating disease, the milk of a Cow that was bitten by a mad Dog has been used even after symptoms of disease had

[Faint, illegible handwriting on a single page of aged paper. The text is written in a cursive script and is mostly obscured by fading and bleed-through from the reverse side.]

had
que
on ch
g
com
to fl
smo
it wa
Man
That
that
on the
be bl
tates.
The
on by
some
secre
The
some
matte
B.

had appeared without being followed by an injurious consequence. The passions of the mind evidently influence its effects on children.

Fat. it is contained in cells or cavities which have no communication with each other. Its use is to facilitate motion, to fill up cavities between the muscles & render the skin smooth & even, to preserve the heat of the body, and supply it with nourishment when the appetite is lost as in sickness. Man loses & acquires fat slower than any other animal. Fat men & other animals have less blood in them than those that are lean, this must be owing to the pressure of the fat on the bloodvessels; for this reason a fat man should not be bled as much as a lean one. An undue proportion constitutes, not a disease, but what I call a disorder.

The most important functions of the body are carried on by means of secretion; animal heat itself is a process something like secretion; thoughts may be said to be a secretion of the brain, and the fetus of the semen.

Of the Excretions

They are the Faeces, Bile, & Perspiration; to which some add sweat but it is only an increased discharge of the matter of insensible perspiration.

Bile, the colouring matter of bile is one of its most
indestructible

[Faint, illegible handwriting on aged paper]

inde
the
ally
file.
he co
and
of the
the
the
cryptic
3
only
persp
by w
repe
in the
the a
the s
water
is in
vance
tes of
ged
skin

indestructible properties, there is some albumen in its composition which gives it its ~~exactly~~ viscosity. The passions, especially anger have have a considerable effect on the secretion of bile. A young gentleman being insulted in a house where he could not decently resent it, after some time went out and vomited nearly a quart of bile.

The peristaltic motion of the intestines is promoted by the stimulus of the cystic bile, costiveness generally follows the obstruction of it. It is the stagnation & absorption of the cystic bile that produces what is called the black jaundice.

Perspiration, the matter of perspiration is discharged only from the extremities of the arteries, that insensible perspiration is continually going on in health is proved by washing the arm, wiping it dry & placing it in a glass vessel, moisture will soon be visible; it is often seen in the breath coming from the lungs. Water injected into the axillary artery of a dead body is discharged through the skin. Sweat is not an acid nor alkali. It is chiefly water, salt to the taste and has a peculiar odour, which is increased by labours & animal food particularly when rancid. It is discharged from the same vessels as the matter of insensible perspiration. Perspirable matter discharged from the lungs is of the same nature as that from the skin. Perspiration is less copious in women than men,
hence

[Faint, illegible handwriting on a single page of aged paper. The text is written in a cursive script and is mostly obscured by fading and bleed-through from the reverse side.]

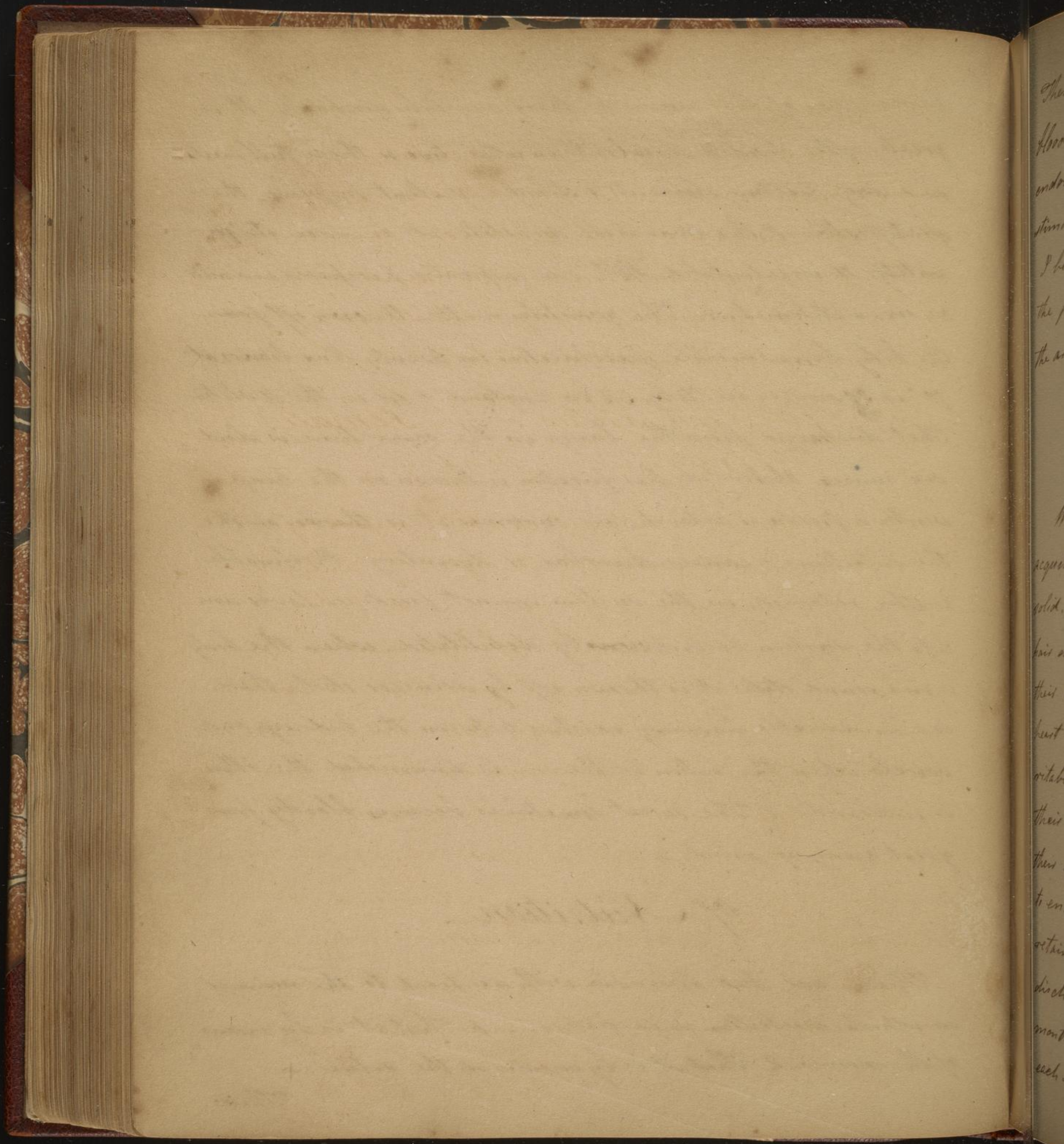
hence
great
in a
great
partly
as six
the
70° is
that
six
winter
the
matter
help to
is in a
is a
lower
in
great
off
in
of the

hence one of the causes of their monthly discharge. It is greater after divided meals, than after two or three full meals in a day. Certain aliments & drinks, violent passions, the gratification of the venereal appetite all increase its quantity. It is calculated that one carpenter perspires as much as six watchmakers. The quantity matter thrown off from the body by insensible perspiration in twenty four hours, at 70° is 50 ounces in Italy, 32 in England & 41 in the U. States. That discharged from the lungs in the same time is about six ounces. Obstructed perspiration is thrown on the lungs in winter & produces catarrh, in summer it is thrown on the the intestines & causes diarrhoea or dysentery. Perspirable matter retained in the system cannot produce fever unless the system be previously debilitated, when the body is in a sound state it is thrown off by urine or stool; there is a considerable harmony existing between the kidneys and bowels when the action of the one is diminished the other is increased. The sweat sometimes becomes bloody from great agony of mind.

Of Nutrition.

There are two opinions with respect to the manner in which nutrition is carried on. 1 That it is by means of the nerves. 2 That it is by means of the arteries.

There

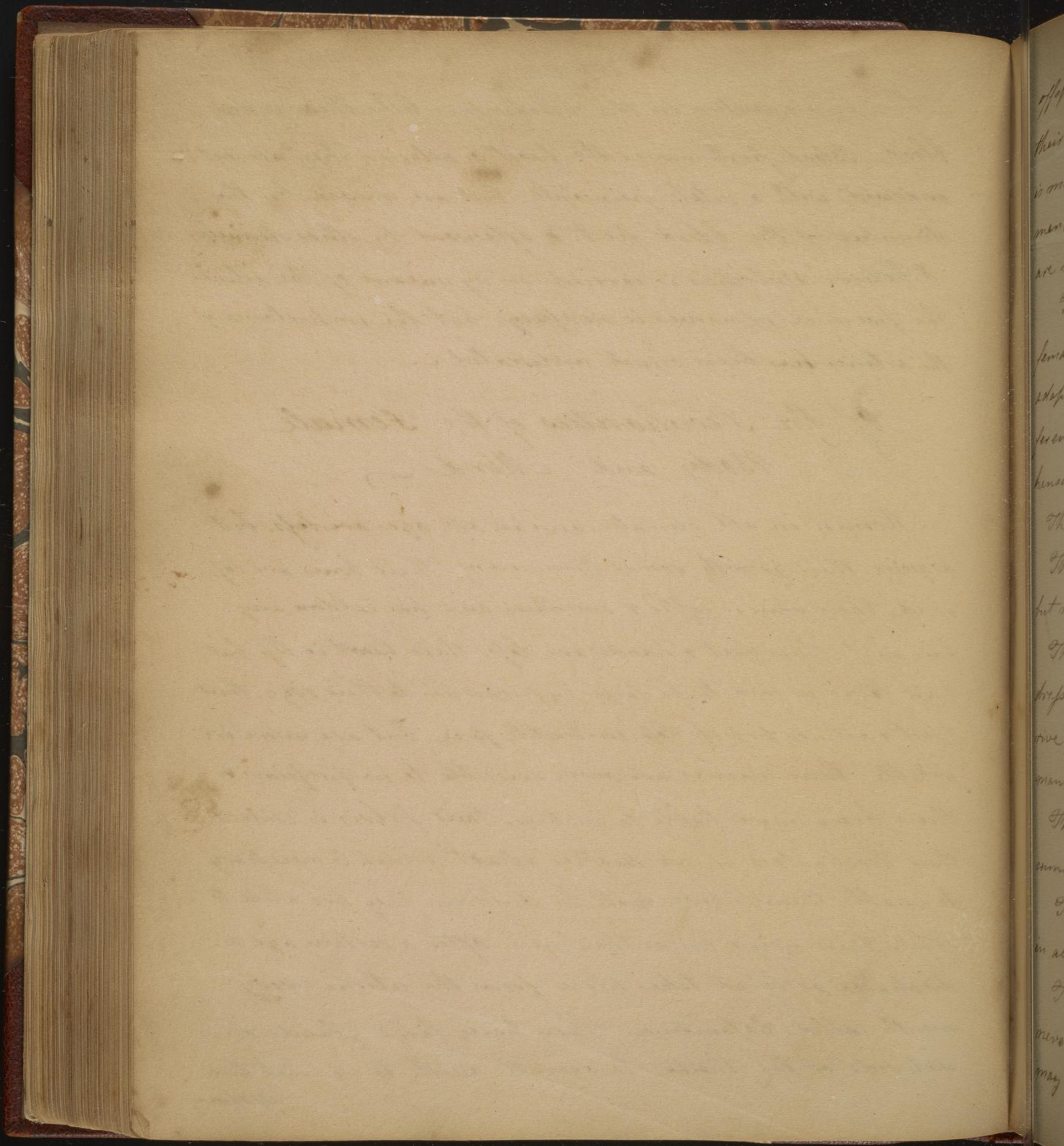


There is no motion in the bloodvessels till there is red blood. Blood first moves the heart & arteries; they are not endowed with a vital principle, but are moved by the stimulus of the blood first, & afterward by other stimuli.

I believe nutrition is carried on by means of the arteries, the presence of nerves is necessary; but the importance of the arteries has been much underrated.

Of the Peculiarities of the Female Body and Mind

Women in all climates, and in all ages are less, but acquire their growth sooner than men. Their bones are less solid, their skin is softer & smoother, and has seldom any hair on it, their feet & hands are less, their heart is less but their liver is said to be larger in proportion to their size, their heart & arteries possess less contractile force but are more irritable, their nerves are more sensible to impressions & their brain more liable to motions, their pelvis is wider & their trochanters much further apart, which is necessary to enable them to give birth to children; they are able to retain their urine longer than men. After a certain age a discharge of blood takes place from the uterus every month called Catamenia. They have large glands on each side of the thorax to secrete milk to nourish their
offspring



offspring. Their thorax is moved more in respiration and their abdominal muscles less, than in men. Their voice is more soft & shrill, and they are longer lived than men, that is a greater proportion live to be old, but there are more very old men than women.

The difference between the minds of males and females has been ascribed to education; but I cannot adapt this opinion, I believe there is a natural difference. For women the mind is less vigorous & comprehensive than in men.

Their understanding is less vigorous.

Their memory exceeds that of men for words & names but not for abstract ideas.

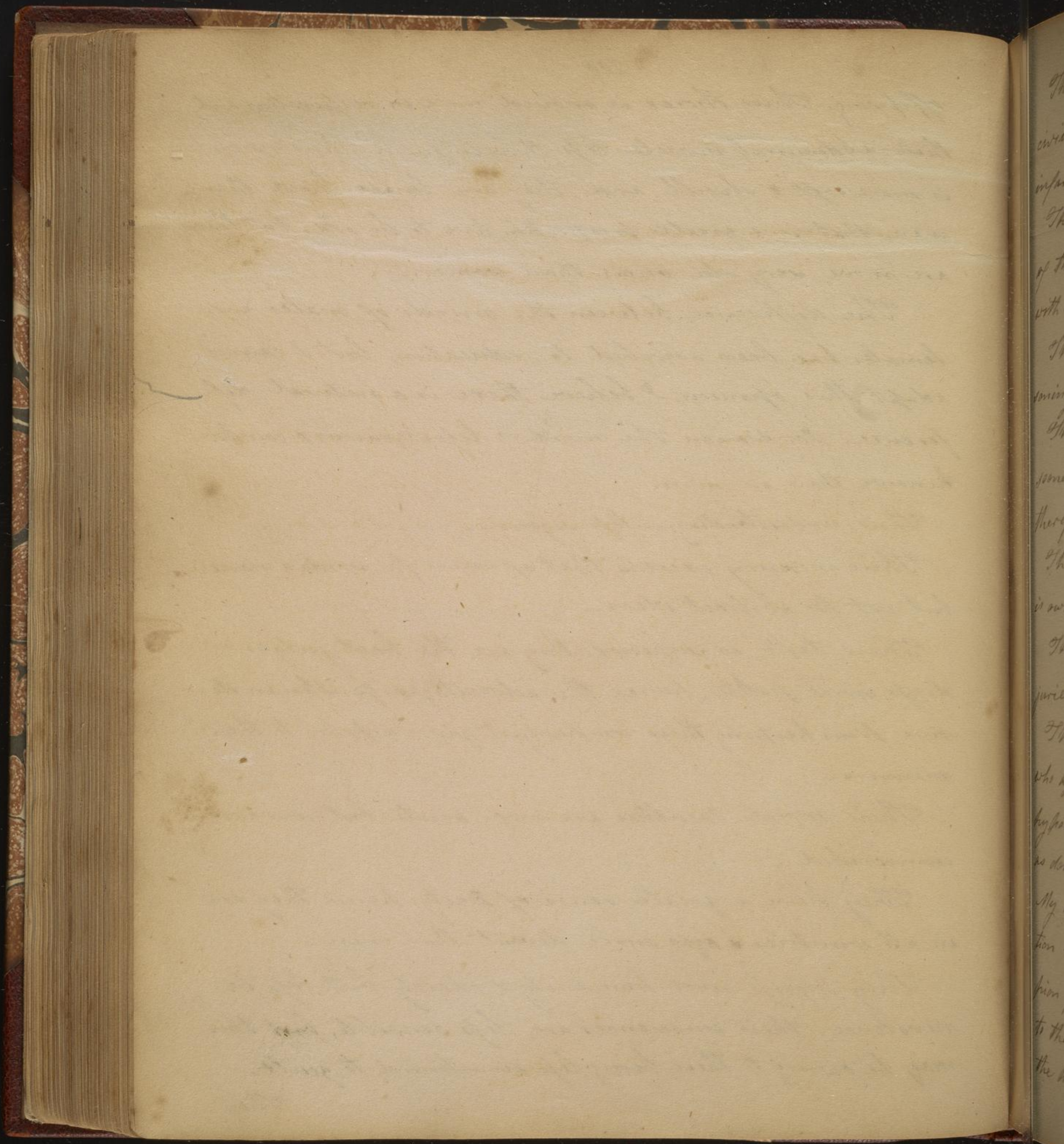
Their taste is superior, they are the best judges of dress, most polite, hence the advantages gentlemen derive from keeping their company, it gives a polish to their manners.

Their moral faculties are more acute but more circumscribed.

They have a greater sense of Deity, hence they are in all countries & ages more devout than men.

They possess more humanity & charity but less benevolence, their consciences are less sensible, but this may be owing to their being less accustomed to guilt.

They



They have less veracity, this is owing to the customs of civilized life compelling them to dissemble from their infancy.

They are more communicative than men, but it is of the secrets of others, not their own. It is the reverse with men, they communicate their own, not other people's.

They have more prompt perceptions, but their reasoning powers and judgments are weaker.

They have less courage but more fortitude. They sooner despair of life in sickness than men, they are therefore less proper nurses in dangerous diseases.

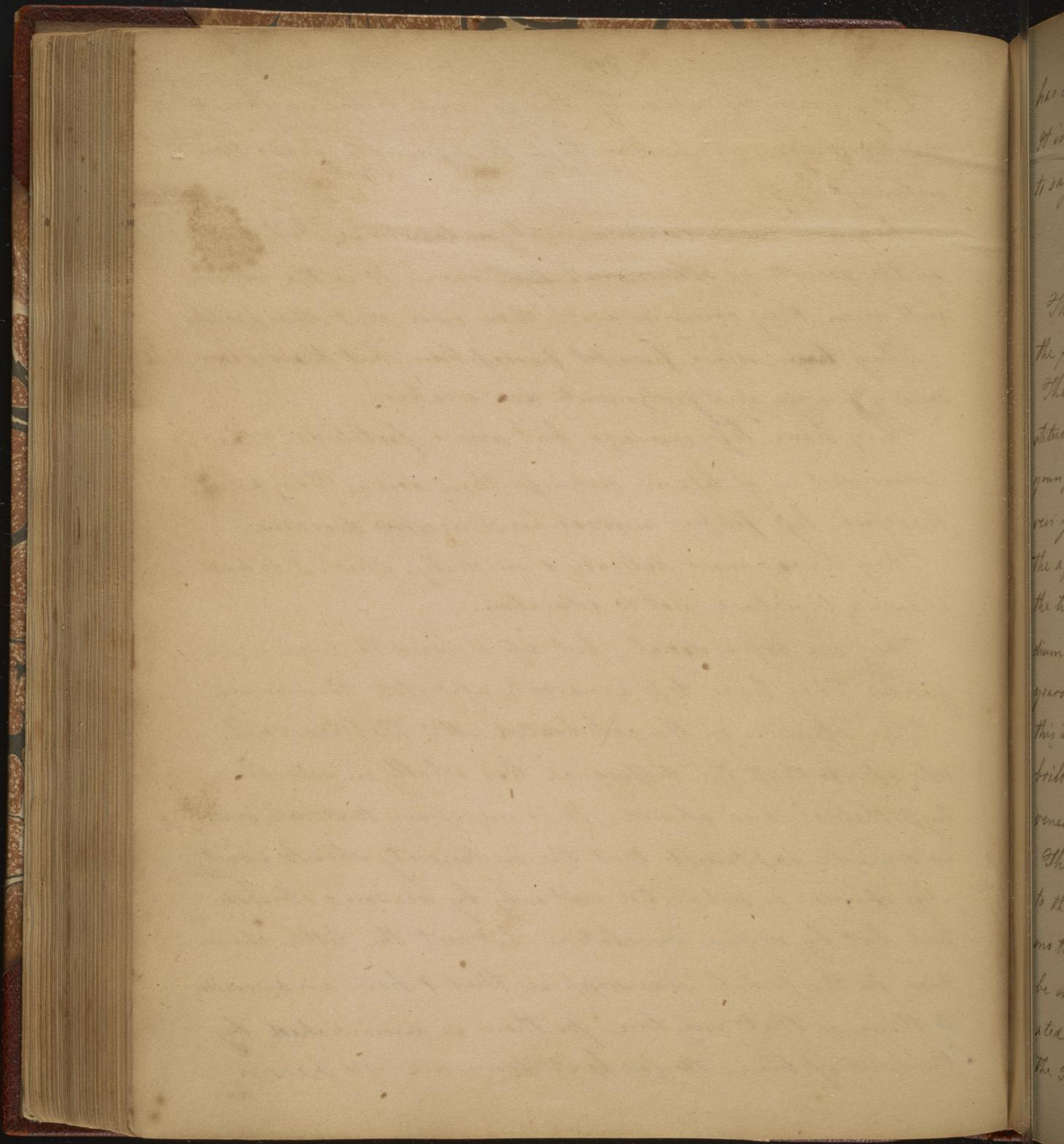
They have more delicacy & modesty, which I believe is owing to nature, not to education.

They are more social, but less disposed to forgive injuries. They have less venereal appetite than men.

The opinion of the celebrated Mrs. Wolstencraft who asserts that the difference lies wholly in education hypothetical and absurd. It is necessary to social as well as domestic happiness that the inferiority should exist.

My opinion is supported not only by reason & observation but by divine revelation. Let not the little cham-

pion for the female sex suppose that I have an aversion to them, or that my love for them is diminished by the hand of time: No far be it from me: No person has



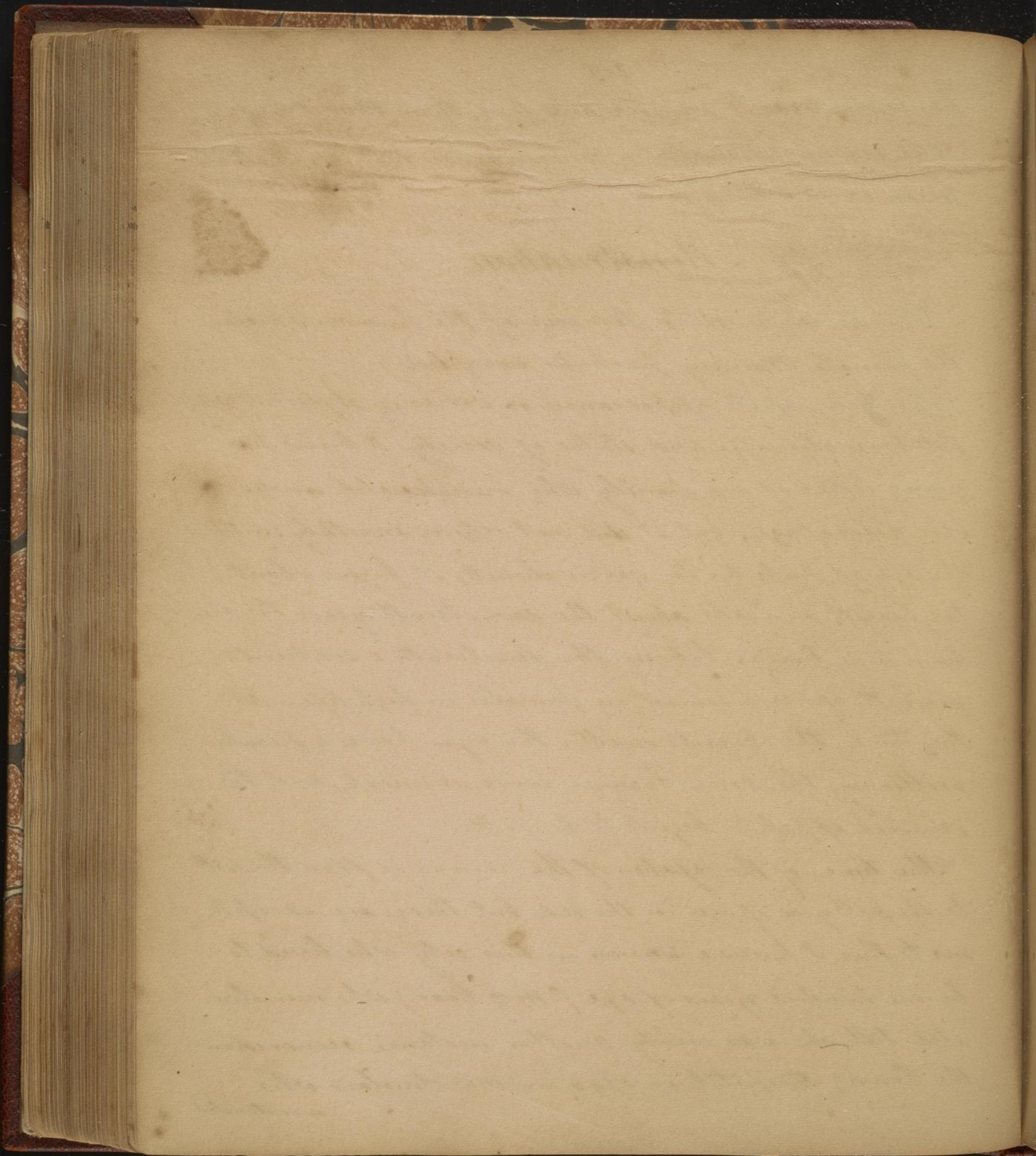
has more reason to admire and love them than I have.
It is reason, observation & common sense that compell me
to say what I have said.

Of Menstruation

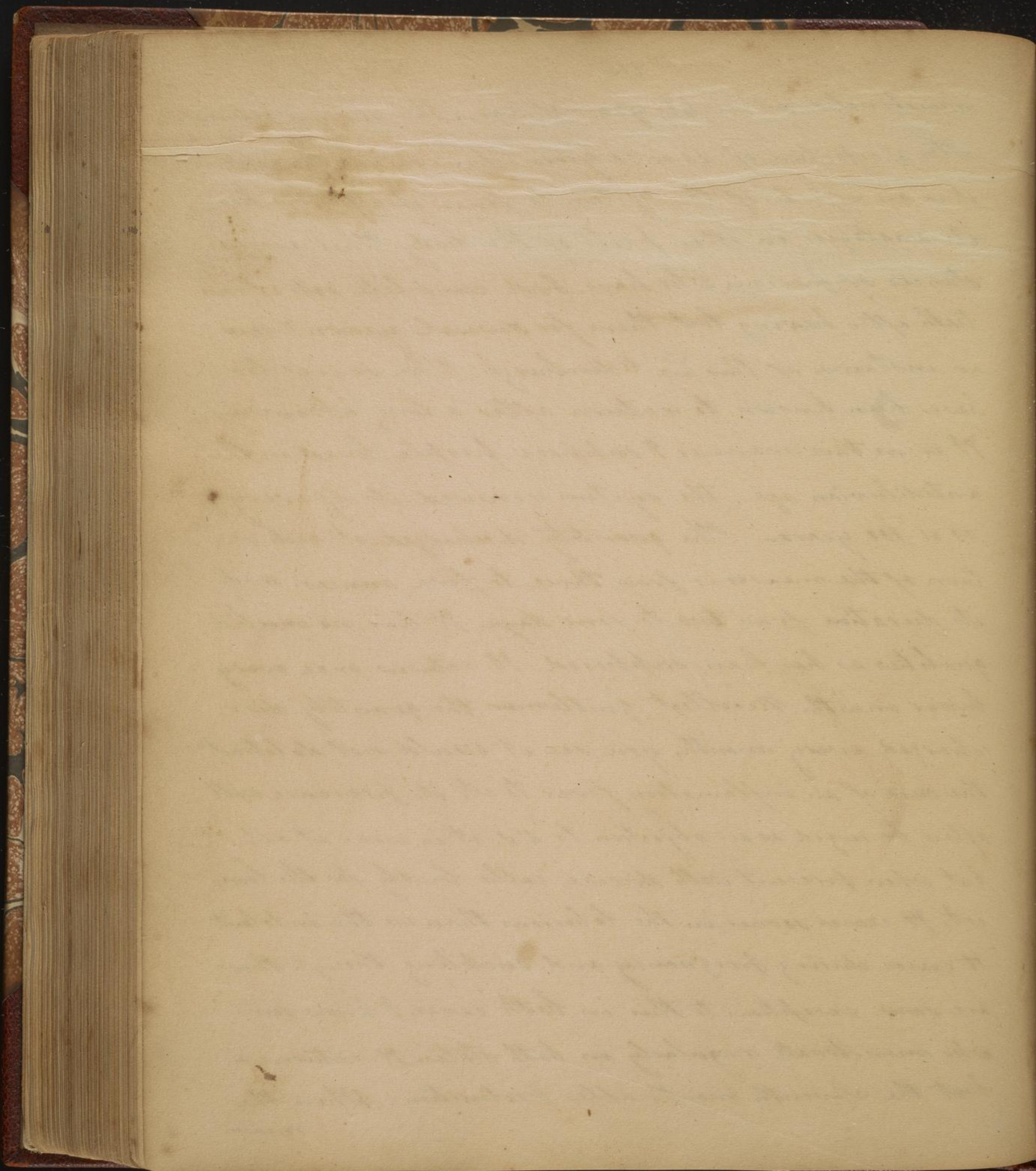
This is confined to females of the human species,
the female Monkey perhaps excepted.

The time of its appearance is varies in different con-
stitutions, climates and states of society. I knew two
young ladies of one family who menstruated under se-
ven years of age, but it did not return monthly until
the age of puberty. In warm climates it begins about
the twelfth & in cold about the seventeenth year; the me-
dium time time is between the fourteenth & sixteenth
years. It appears soonest in females in high life. At
this time the breasts swell, the eyes have a peculiar
brilliance, the voice becomes more musical, and the
venereal appetite begins to be felt.

The time of the cessation of the menses is from the 45th
to the 50th year of age in the U.S. but there are excepti-
ons to this. I knew a woman in this city who lived to
be one hundred years of age (Mrs. Cox) who menstu-
ated till she was eighty. Another instance occurred in
the Penn^a Hospital in 1795 in Mrs. Sinclair who
menstruated



menstruated at eighty years of age; the menses returned after a cessation of 20 or 30 years; when this is the case it is an effort of the system to renew itself: this has its analogies in other parts of the body. There are instances of persons who have had complete sets of new teeth after having lost them for several years. I saw an instance of this in Edinburgh. The senses too have been known to return after a long absence - It is in this manner I suppose people lived in the antediluvian age, the system renewed itself every 80 or 100 years. The quantity discharged at each return of the menses is from three to five ounces; and its duration from two to four days. It has no morbid qualities as has been supposed. It returns once every lunar month. Recollect gentlemen the quantity discharged every month, you see it would not do to trust the cure of an inflammatory fever to it, its presence will often be urged as an objection to V.S. it is none at all but when present with disease calls loudly for the lancet. It ceases sooner in the laborious than in the indolent. It ceases during pregnancy and suckling, though there are some exceptions to this in both cases, I know some who menstruate regularly in both states. It returns about the eleventh month after parturition. When the
menses



men
the
In
follo
1
2
3
Lo
This
It ha
vene
for
uter
the
uses
No
tomis
the
thou
or lo
1
per
2
3

menses appear during pregnancy the blood comes from the Vagina and not from the Uterus.

In enquiring into the cause of menstruation, the following questions naturally present themselves.

- 1 What is its origin?
- 2 Why is it periodical?
- 3 What purpose is it intended to serve?

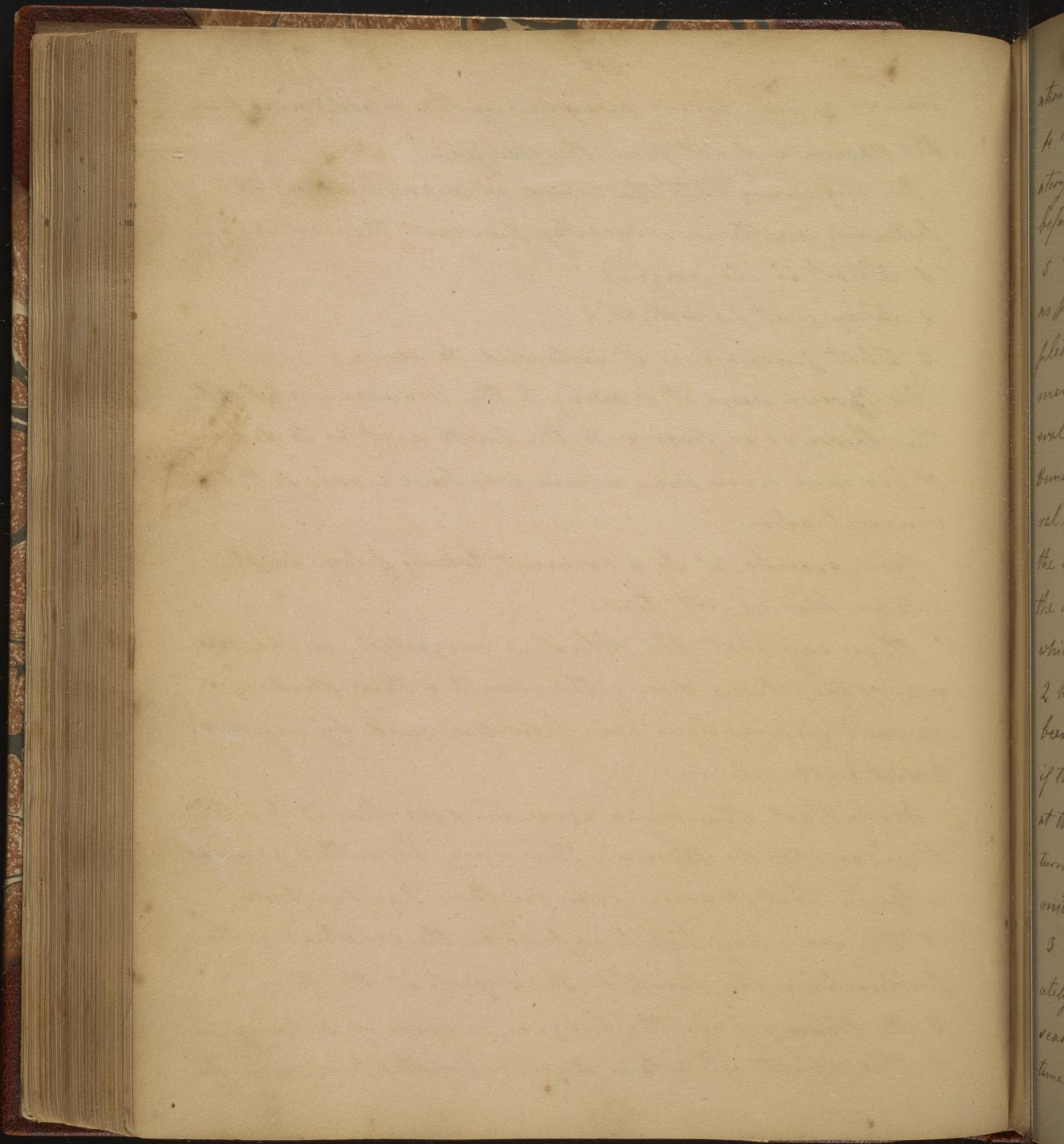
Dr Brown says it is owing to the venereal appetite. This theory is as foreign to the truth as it is to delicacy. It has come on in some women who have never felt the venereal glow.

Some ascribe it to a ferment taking place in the uterus, this is not true.

Others say that the blood is congested in the sinuses of the uterus during the month & then discharged. No such sinuses have ever been discovered by any anatomist in the uterus.

Almost all Physicians agree in ascribing it to plethora except Dr Brown. This may be either general or local. That it arises from plethora I infer from,

- 1 The sedentary habits of females, the smallness of their perspiration & the laxity of the vessels at the time.
- 2 Its flowing from the lungs &c in cases of suppression.
- 3 The effects of certain diseases in stopping menstruation.



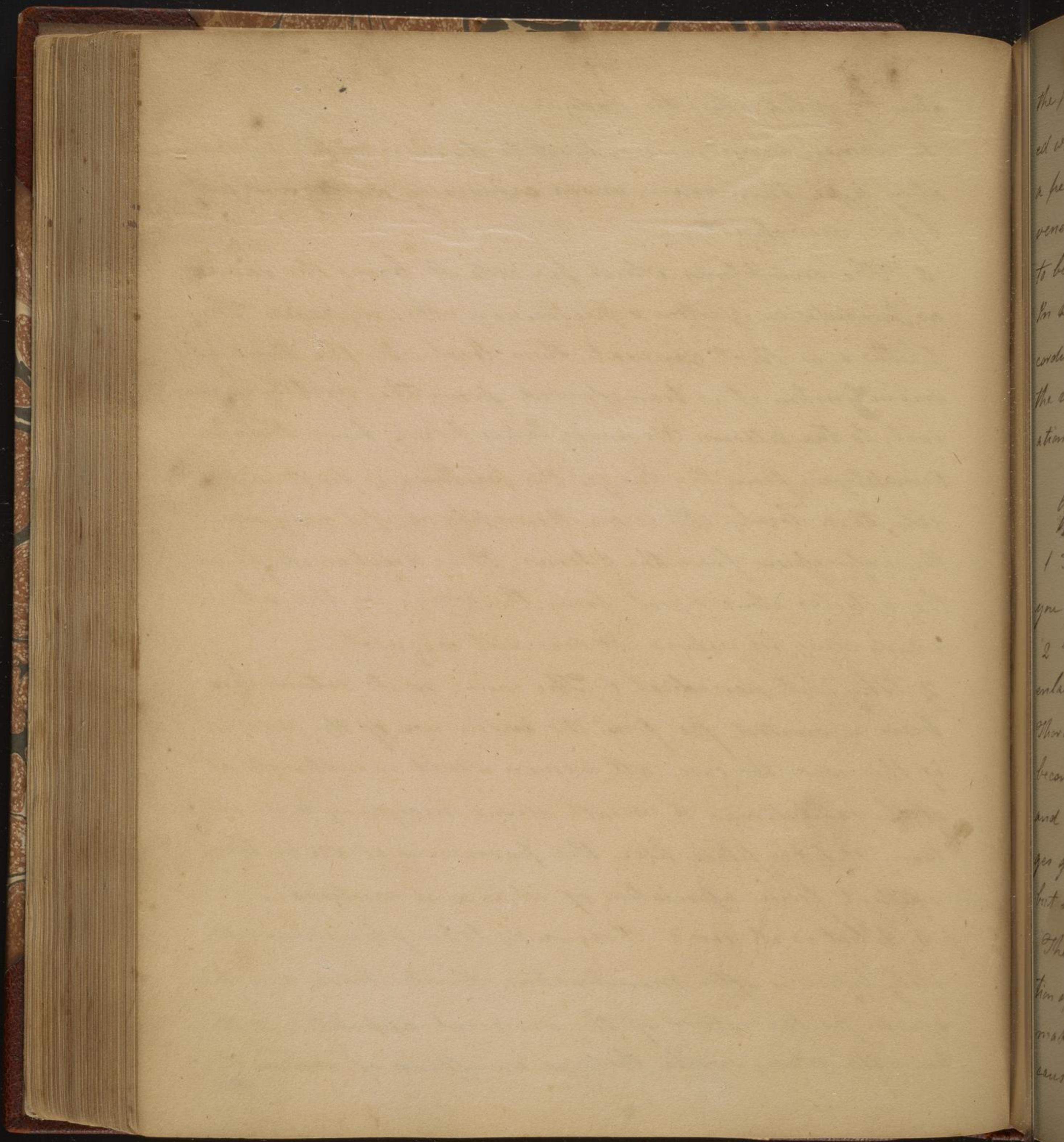
ation by debilitating the body -

4 Women being more subject to diseases of the inflammatory type than men, more especially during and just before menstruation -

5 The symptoms which precede it being the same as precede congestion & plethora in other diseases. The plethora is first general, then local. In the time of menstruation it is transferred from the system in general to the uterus. No more takes place here than in Hemoptysis from the lungs, the plethora is first general, then local. It is an Hemoptysis, if I may use the expression, from the uterus. It is discharged from the arteries alone & not from the veins in the uterus which have no valves. It does not coagulate -

2 Why is it periodical? The cause of its return has been accounted for from the influence of the moon, if this were the case all women would menstruate at the same time. A month seems necessary to its return. It takes place like the paroxysms of an intermittent from association of ideas and motions -

3 What is its use? Pregnancy takes place immediately before or after menstruation, Brutes have a certain season for the return of the venereal appetite, at this time the uterus swells, there is an afflux of ^{humours} ~~humours~~ to the



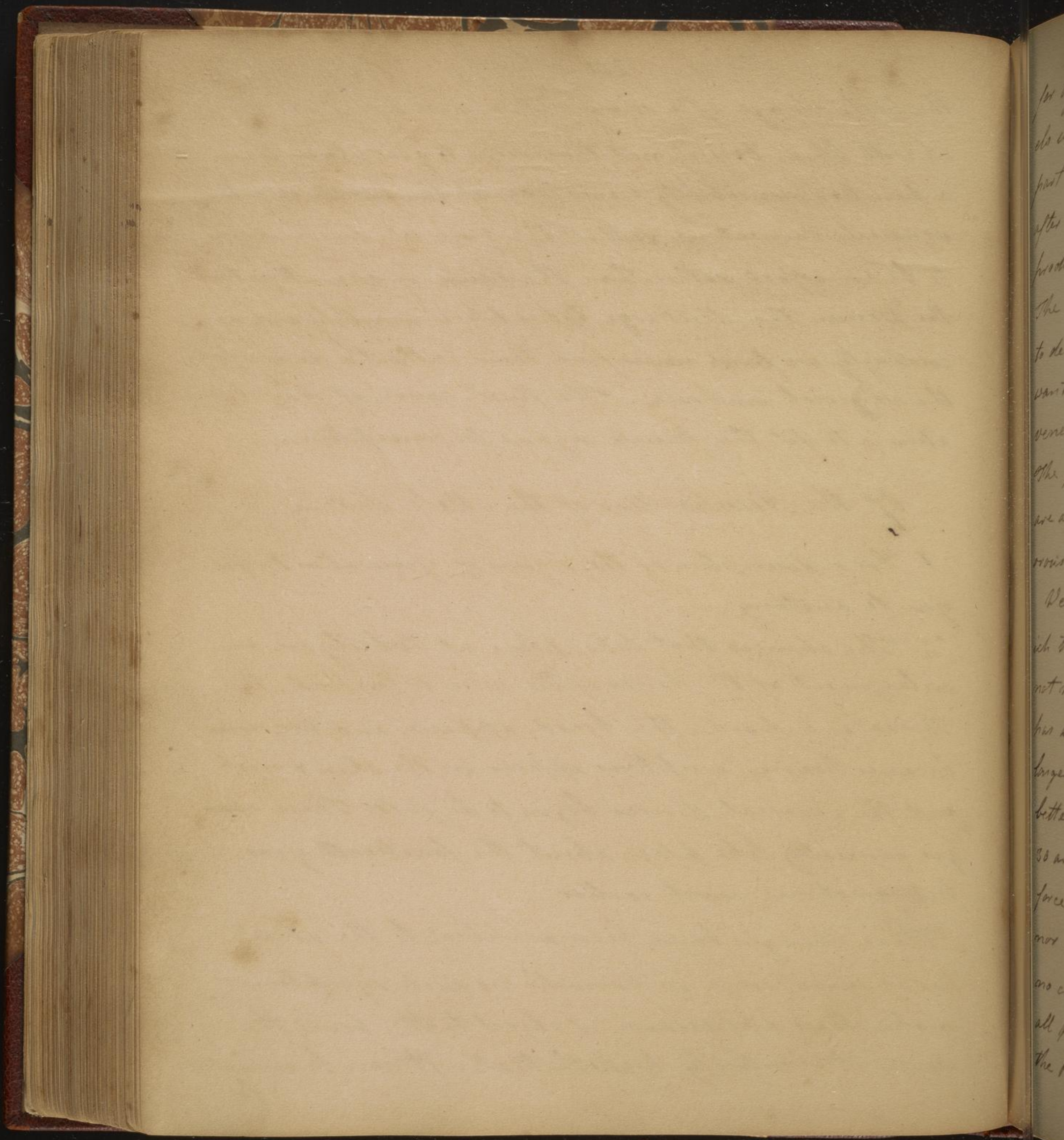
the part, always of a slimy nature and sometimes mixed with blood. Does it not then seem to generate in them a peculiar sensibility & increase of the pleasures of the venereal connection? so that the venereal desire seems to be an effect rather than the cause of menstruation. In women this discharge takes place monthly and accordingly we ~~find~~ never find them without a desire for the venereal embrace. The final cause of menstruation is to fit the female organs for conception.

Of the Peculiarities of the Male Sex.

1 For a description of the organs of generation I refer you to anatomy.

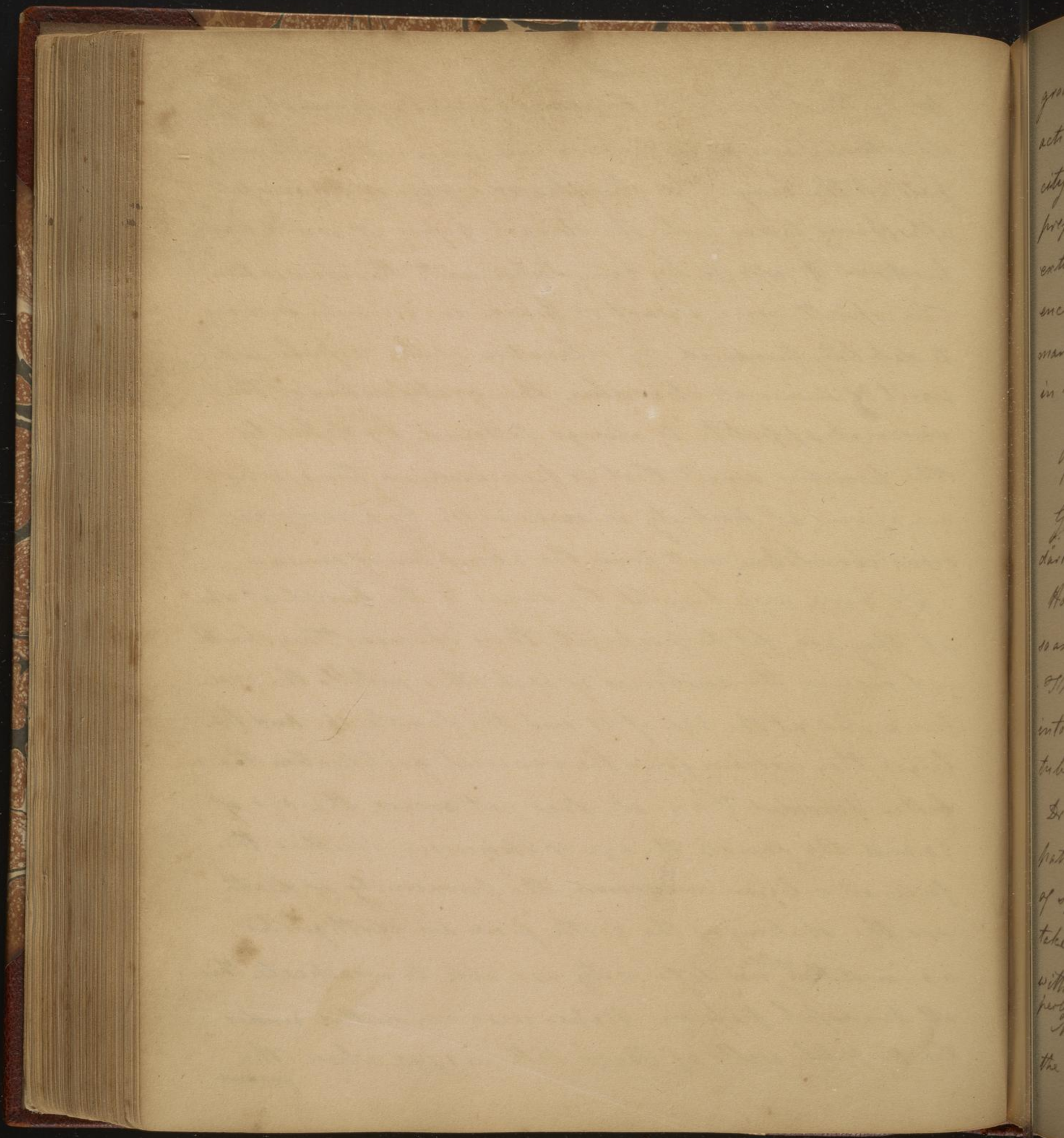
2 The changes that take place at Puberty are, an enlargement of the bones of the nose & forehead, the thorax is widened, the beard appears, and the voice becomes hoarse, eruptions appear on the skin & neck, and the venereal desires begin to be felt. These changes generally take place about the fourteenth year, but sometimes much earlier.

These changes have been ascribed to the absorption of semen, since in Curuck's no such symptoms make their appearance. I object to this being the cause, it is intirely hypothetical. It can be accounted for



for by the stimulus of the semen upon the seminal vessels which have an extensive communication with every part of the body. The stimulus of a glass of wine is felt after being taken into the stomach before it could have produced its effects by being taken into the circulation. The shrill voice & want of beard in Eunuchs is owing to debility produced by relaxation of the vessels and want of seminal stimulus, the gratification of the venereal appetite is always followed by debility. The peculiar smell that is perceived in those who are arriving at puberty is occasioned by a more vigorous circulation, not from the absorption of semen.

We have now brought the sexes to the period at which they are fit to procreate their species. They should not receive the embraces of each other untill the male has arrived at the age of 21 and the female 16. And the longer they refrain from the venereal gratification the better provided the male does not exceed the age of 30 and the female the age of 24 years. Neither the force of religion nor reason, the proximity of death nor the shaking of the earth from an earthquake, no condition ^{of life} nor deformity are able to irradicate this all powerful passion. Rapes were committed under the Hospital walls of Bush Hill in 1793. where the groans



groans of the dying were heard in every quarter. The same act took place when an earthquake made desolate the city of Lisbon. The monster at the Posaik falls expressed a great desire to have a wife. Disease does not extinguish it, nor old age chill its universal influence. No man can live without venereal desires; no man can indulge in them without sinning, except in matrimony.

Of Generation, Conception & Parturition.

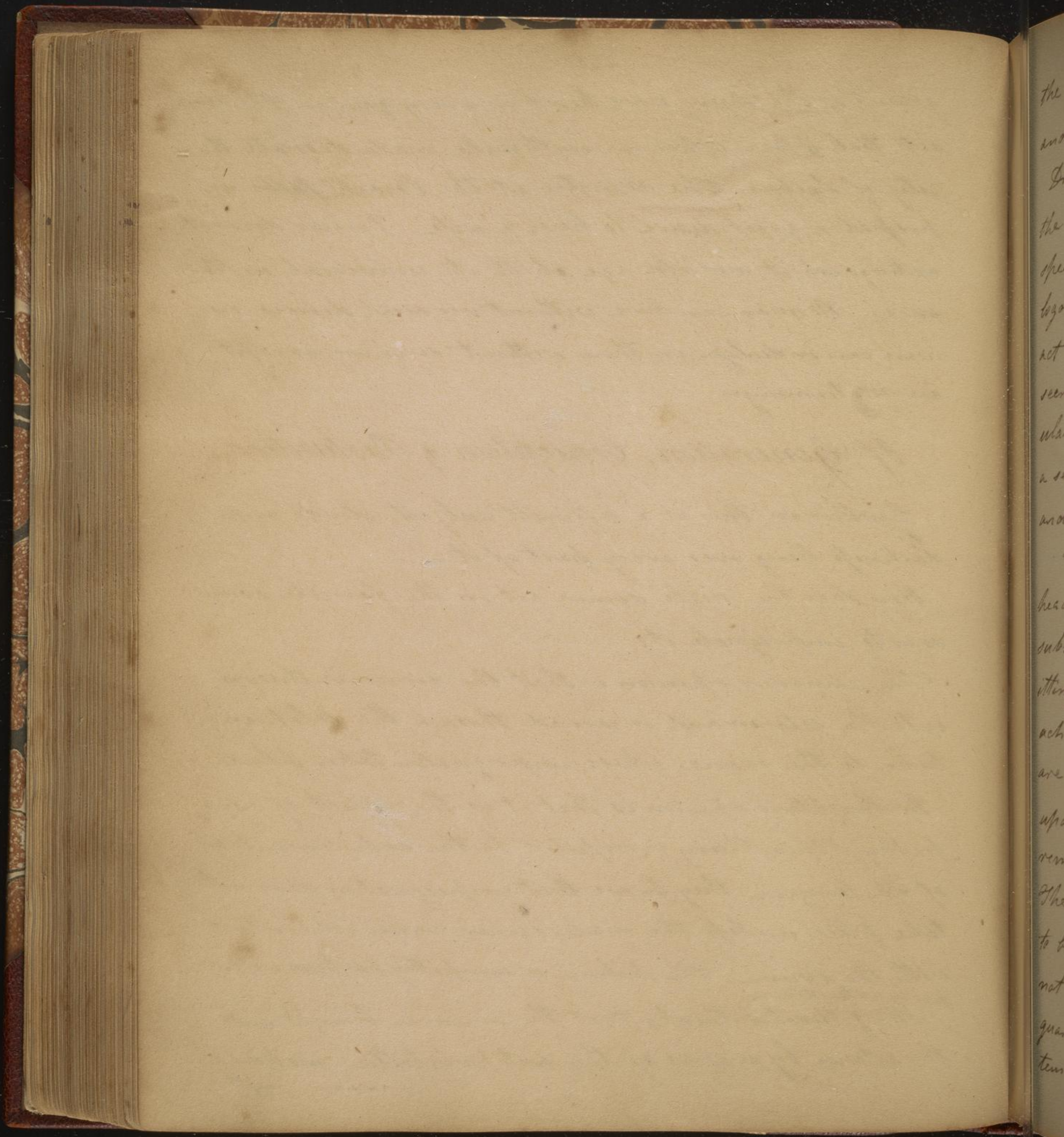
Gentlemen this is a difficult subject, clouds and darkness hang over every part of it.

How does the male semen act on the female ovum so as to impregnate it?

The common opinion is that the semen is thrown into the uterus and is carried through the fallopian tube to the ovaria where impregnation takes place.

Dr Haighton's opinion is that it is the effect of sympathy. This theory is refuted by the experiments of Spallanzani. They prove that impregnation does not take place unless the male semen come in contact with the ovum. The doctrine of sympathy has been improperly extended.

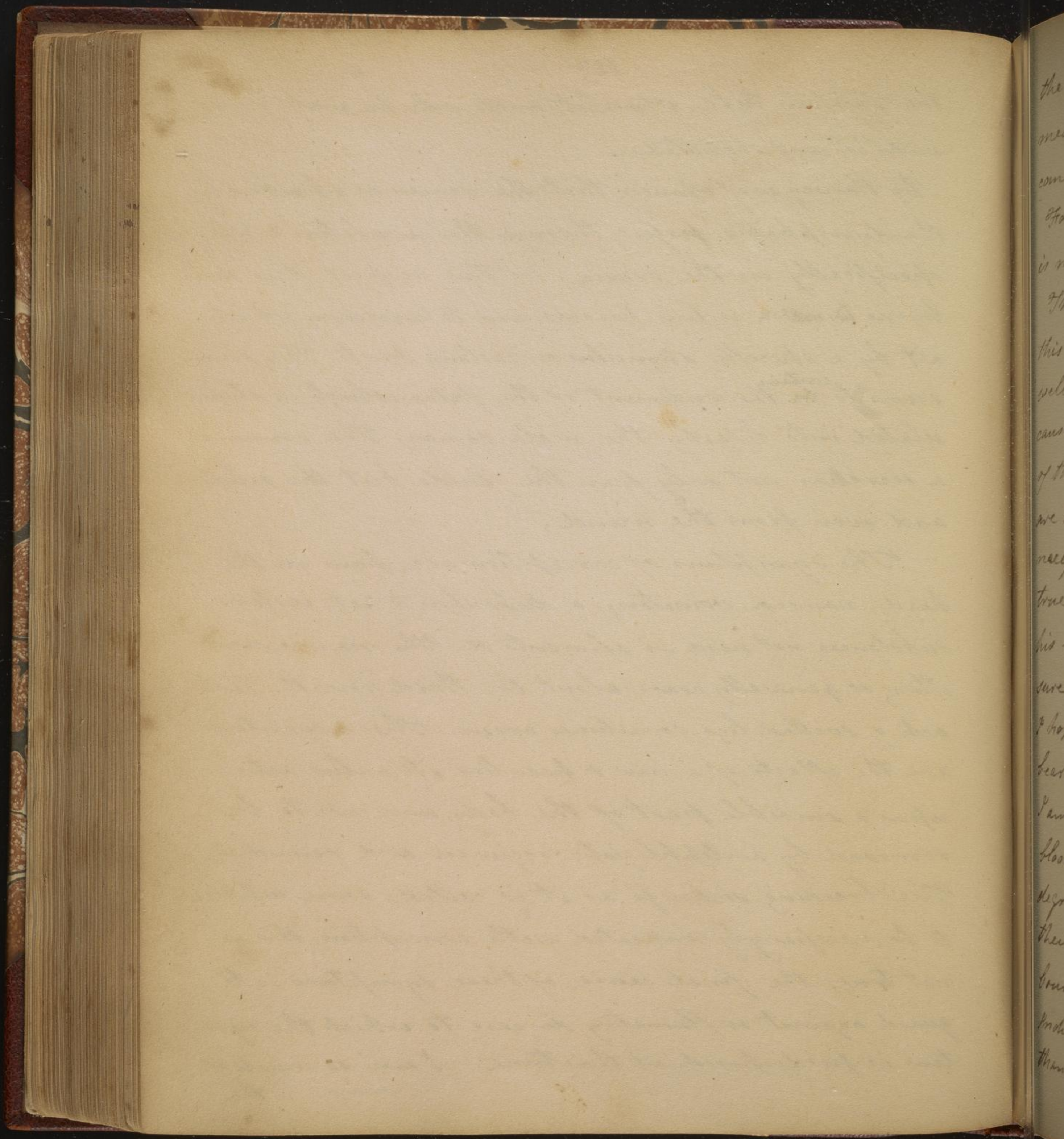
Mr J Hunter thinks that the ovum is brought into the uterus by means of the antiperistaltic motion of the
the



the Fallopian tube, where it meets with the male semen and is impregnated.

Dr Harvey is of opinion that the semen is absorbed by the lymphatics, passes through the circulation & acts specifically on the ovaria. In this respect it is analogous ~~to~~ certain poisons, and to mercury which act by a specific stimulus on certain parts. The ovum seems to ^{contain} the rudiment of the fetus which is stimulated into life by the male semen. The semen is a secretion not only from the fluids, but the solids and even from the mind.

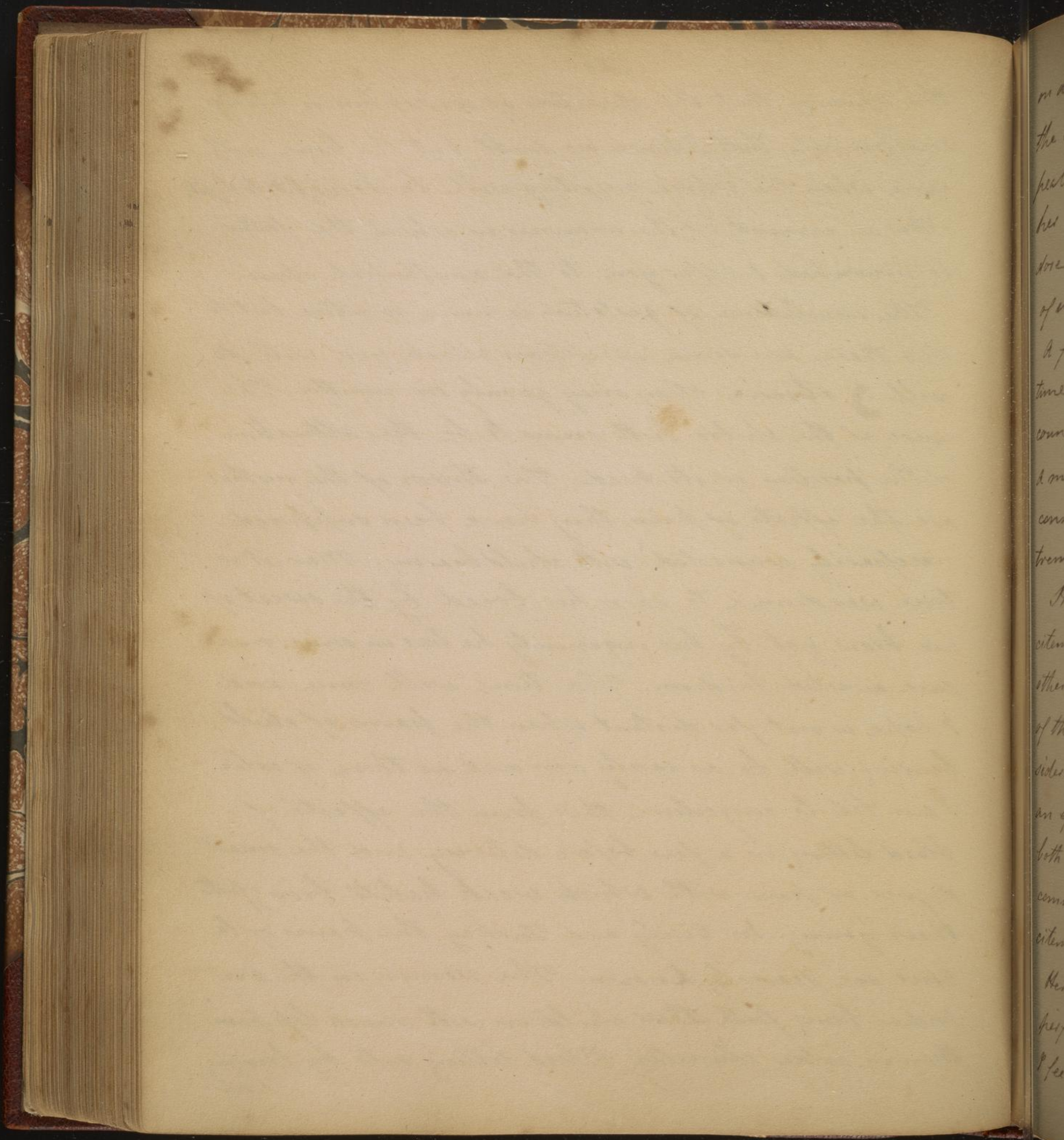
The symptoms of conception are pain in the head, nausea, vomiting, a disposition to eat certain substances not used as aliments &c. The nausea, vomiting &c generally cease about the third month. Tooth ach & swelled legs sometimes occur. These symptoms are the effects of a new & peculiar stimulus acting upon a sensible part of the body, and are to be removed by antiphlogistic regimen and remedies. The breeding sickness as it is called, some suppose to be necessarily connected with conception, this is not true; the final cause of these symptoms is to guard against inflammatory disease to which the system is predisposed at this time. I am so much of
the



the opinion that the operation of conception is totally mechanical, that I have no doubt but the time will come when the whole mystery will be brought to light.

For an account of the manner in which the fetus is nourished I refer you to the anatomical chair.

The usual time of gestation is nine months, but to this there are some exceptions which you will do well to observe. They may go only six months. The cause of the child's birth seems to be the alteration of the position of its head. The throws of the mother are the effects of pain, they have been supposed necessarily connected with childbearing. Man it is true was doomed to earn his bread by the sweat of his brow, yet by his ingenuity he has in some measure averted his doom. The time will come, and I hope is not far distant when the pains of childbearing will be as easily removed as those of colic. I am led to conjecture this from the effects of blood letting in a few before delivery; and the small degree of pain with which weak habits bring forth their young. In Sicily and Turkey the pains of labour are scarcely known. The women in the West Indies bring forth their children with much less pain than in colder climates. Blood letting acts by bringing on

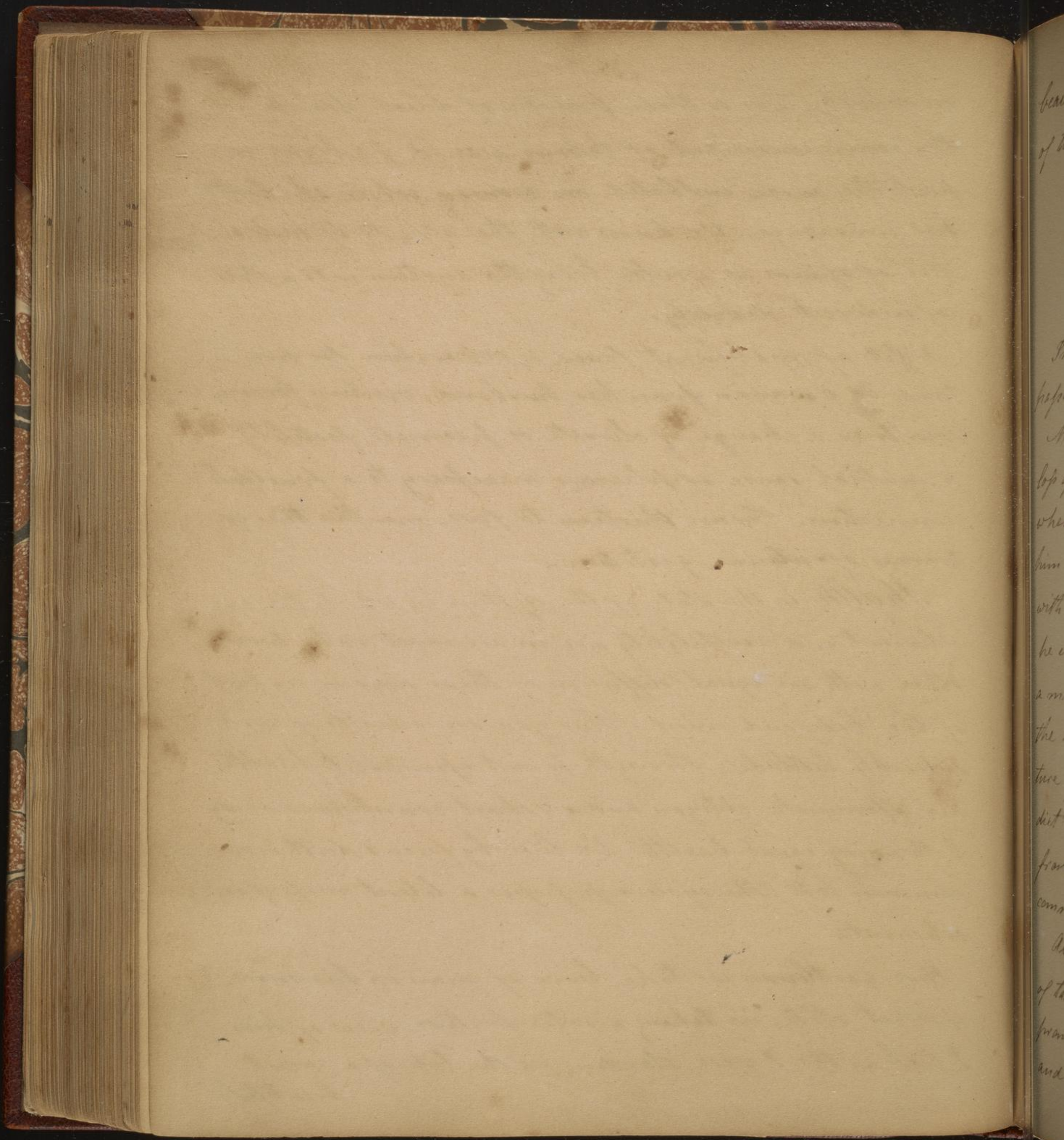


on debility. Two or three pounds of blood drawn at the commencement of labour would perhaps repeal the curse inflicted on woman when she lost her innocence. We know not the effects of such a dose of opium as would bring the system into a state of indirect debility.

A fit of malignant fever, a separation for some time of a woman from her husband, visiting foreign countries, a change of climate or promote fertility. A mutual sense of pleasure necessary to a fruitful connection. From thirteen to five months the extremes of uterine gestation.

Health is the state of the system in which the excitement and excitability are in an exact ratio to each other, with an equal diffusion of them over every part of the body and mind. This you see admits of considerable latitude. Strength is not essential to health, an effeminate citizen and a robust countryman may both enjoy equal health. We live by force & death is our common lot. The system possesses a latent mass of excitement.

Here gentlemen we take leave of man in his more perfect state; in taking a retrospective view of him I feel as tho. I were standing on the top of a most beautiful



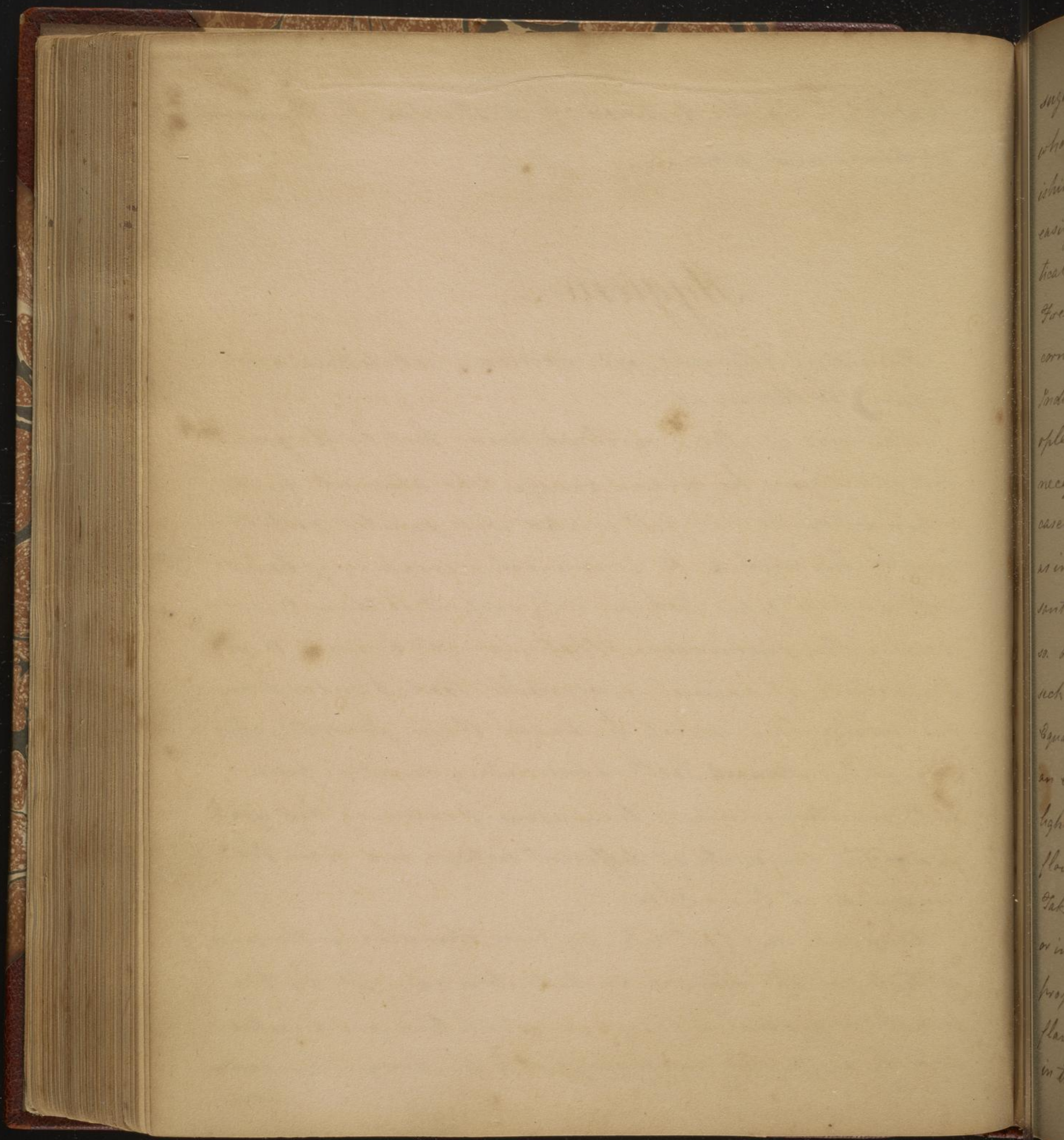
Beautiful Castle destined to destruction by the hand of time and war.

Hygiene

Including Aliments, air, exercise, habitations and passions of the mind.

Man was created a civilized being, but by the gradual loss of religion he became savage. The aliments he ate when when he was first created were pointed out to him by his maker. He is as much a creature of habit with respect to his food as with respect to climate; hence he is called omnivorous. That man was designed to eat a mixture of animal & vegetable food, I infer from the instinctive relish he has for them, from the structure of his ~~stomach~~ teeth, alimentary canal &c. from diet consisting of one of them alone producing bad effects, from the longevity of different nations, and from the command of his maker.

Aliments support life by their stimulus on the sense of taste, on the stomach by distention & weight, by the prompt or gradual manner in which they are digested, and by imparting nourishment to the body. They contain
sugar



sugar, oil, starch, gum, mucilage &c. Bread is the most wholesome when taken cold. Rye bread is very nourishing and frequently gently aperient. Biscuit is more easily digested than leavened bread because we masticate it more perfectly. Carbonic acid a good leaven. Fresh or hot bread not so easily digested as cold. Indian corn bread wholesome. Bread made of wheat and Indian corn meal mixed is a good diet for costive people, sometimes the best remedy. It is not always necessary that food should be quickly digested in some cases that of long or difficult digestion is to be preferred, as in dyspepsia, or for labouring people. Rice is pleasant to the taste & very nourishing. Barley is still more so. Oatmeal in the form of gruel is a light food for sick persons, and contains but little nourishment. Equal parts of flour and boiled potatoes mixed, make an excellent crust for apple dumplings, it is much lighter & more easy of digestion than that made with flour & butter. Vegetable soup is made as follows.

Take one fourth onions, three fourths potatoes, peeled, or instead of the potatoes rice or barley in the same proportion, boil them together, the onions give it the flavour of animal soup; and if, instead of putting salt in the water a very small piece of ham be boiled in

Potatoes exposed to such a degree of heat as will ~~destroy~~
prevent their germination, may be kept during a long voyage.

in it the flavour will be more pleasant. Potatoes sliced and eaten raw with vinegar it is said will prevent the scurvy. Turnips are less nourishing than potatoes, they are deprived of their bitter taste by letting them stand in water for some time after being pared. Onions are a good diet for labourers, they lie long in the stomach without digestion and impart a great deal of stimulus to the system; boiled in milk & water they make an excellent soup for convalescents. Peas and Beans are commonly used in broth or soup, and when well boiled they are very nutritious. Oat meal Gruel is well suited to give to patients when we wish to fill the stomach but not to nourish them. Buckwheat made into cakes is easy of digestion when not overloaded with butter. Potatoes contain one sixth as much nourishment as bread, they are suited to the same purpose as oatmeal. Parsnips & Carrots require long boiling. Asparagus is nourishing, the smell which it imparts to the urine may be prevented by taking two or three pills of the tears of turpentine. Cabbage is least offensive when in poor ground, and exposed to the frosts of November or December, long boiling or letting it remain several hours in hot water before boiling improves it very much. Cucumbers require
salt

* Apples green or dried, dried cherries &c infused in water
make a palatable & wholesome drink for sick people.

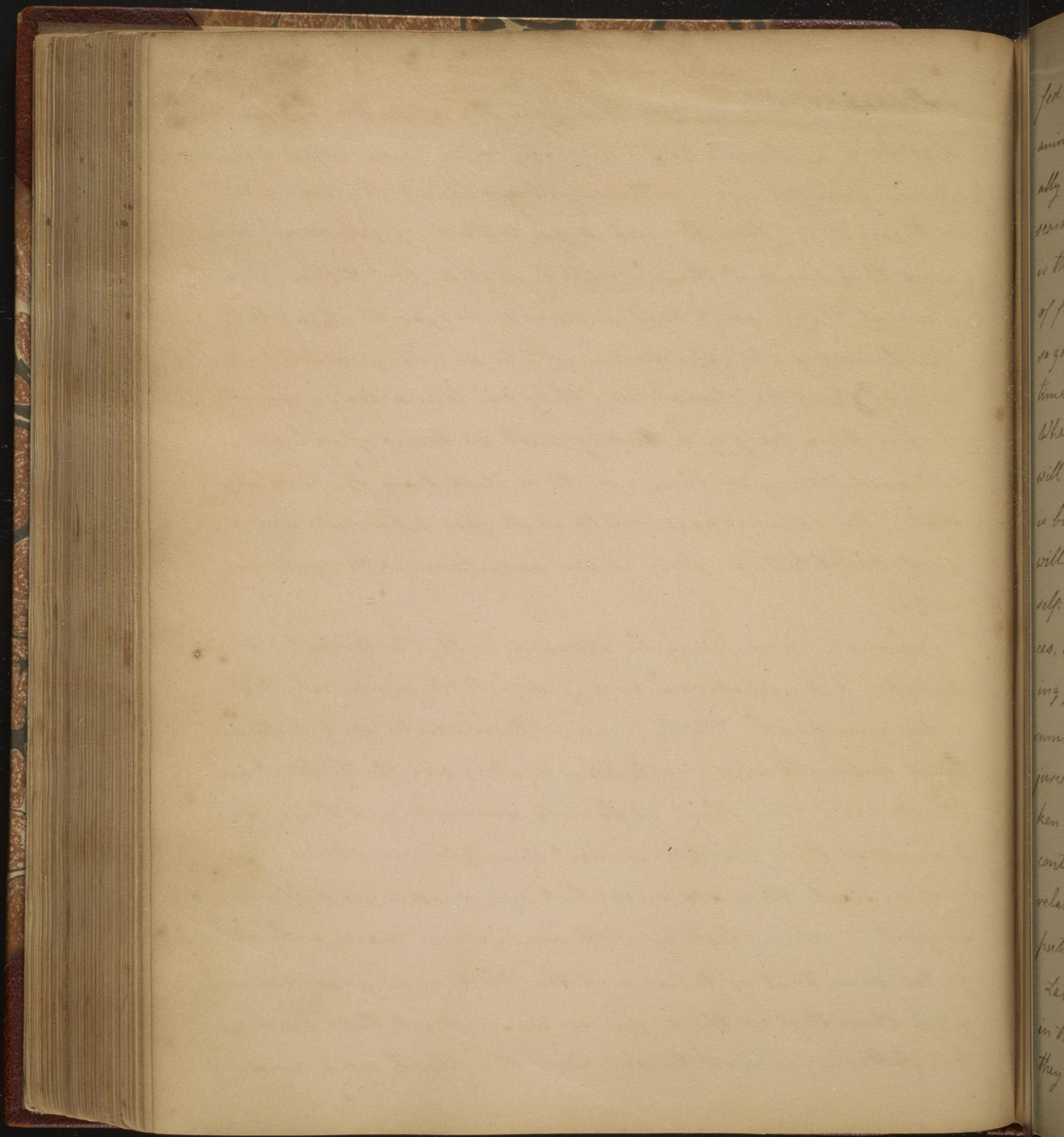
+ Insects & worms.

or nonexisting

^a Stimulating in the order mentioned

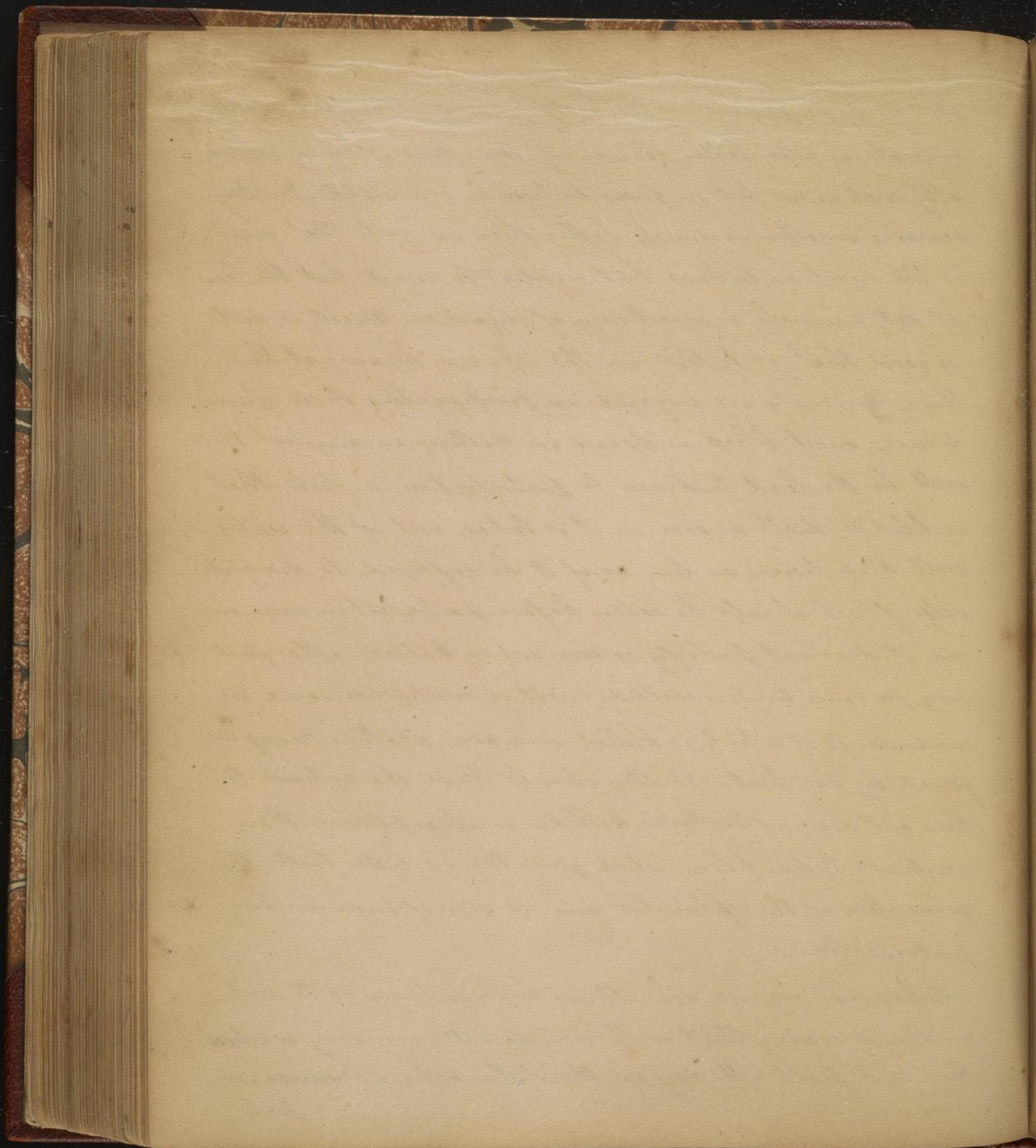
salt, pepper and vinegar to please the appetite & promote digestion. Fruits when perfectly ripe and taken in moderate quantity are nutritious; they obtund the acrid bile or throw it off from the intestines. Instead of producing diseases they prevent them.* Salads contain but little nourishment, they require salt pepper & vinegar to stimulate the stomach & aid digestion. Nuts are very nutritious, some of them too stimulating; they contain a large quantity of oil; from half of a Hickory nut 30 drops of oil were obtained. many of them are too nourishing for ordinary diet. In cases where milk is proper almonds are a good substitute in form of an emulsion with sugar and water.

Animal food may be divided into Terrestrial, Aerial, Aquatic & Amphibious,* and is digestible inversely to the order mentioned. Fish is an intermediate diet between land animals and vegetables. Oysters are the lightest animal food. The flesh of female animals and those deprived of their virility is most digestible, and that of young land animals than old ones; but age makes no difference in fish. The flesh of wild animals is more easily digested than that of tame, and the flesh of animals fed on grass than that of those fed on grain. Meat that has been long fattening is most tender, and the flesh of animals
fed



fed on high ground is the best flavoured. The flesh of wild animals is also better flavoured than that of tame especially such as are fed on grounds highly manured. In dry seasons mutton is much better than in wet. Fat meat is the most nutritious but hardest to digest, but the lean of fat animals is most easy of digestion. Meat is not so good that is killed in the spring because at this time animals are engaged in propagating their species. Where most blood is drawn in killing an animal there will be the least tendency to putrefaction; a fish that is bled to death as soon as it is taken out of the water will keep twice as long as if it be suffered to die of itself; flesh should be eaten before putrefaction commences, it does not putrify so soon when killed after fasting for some time - salted meat is most wholesome in summer, that which is killed in warm weather being injured by the heat. Poultry should have the entrails taken out soon after being killed, or absorption of their contents takes place which gives them a bitter taste, the relaxation of the sphincter ani is sign of commencing putrefaction.

Labourers require something before they go to work in the morning that will not digest very easy or which they can feel all day in their stomachs, as sausages,
pork



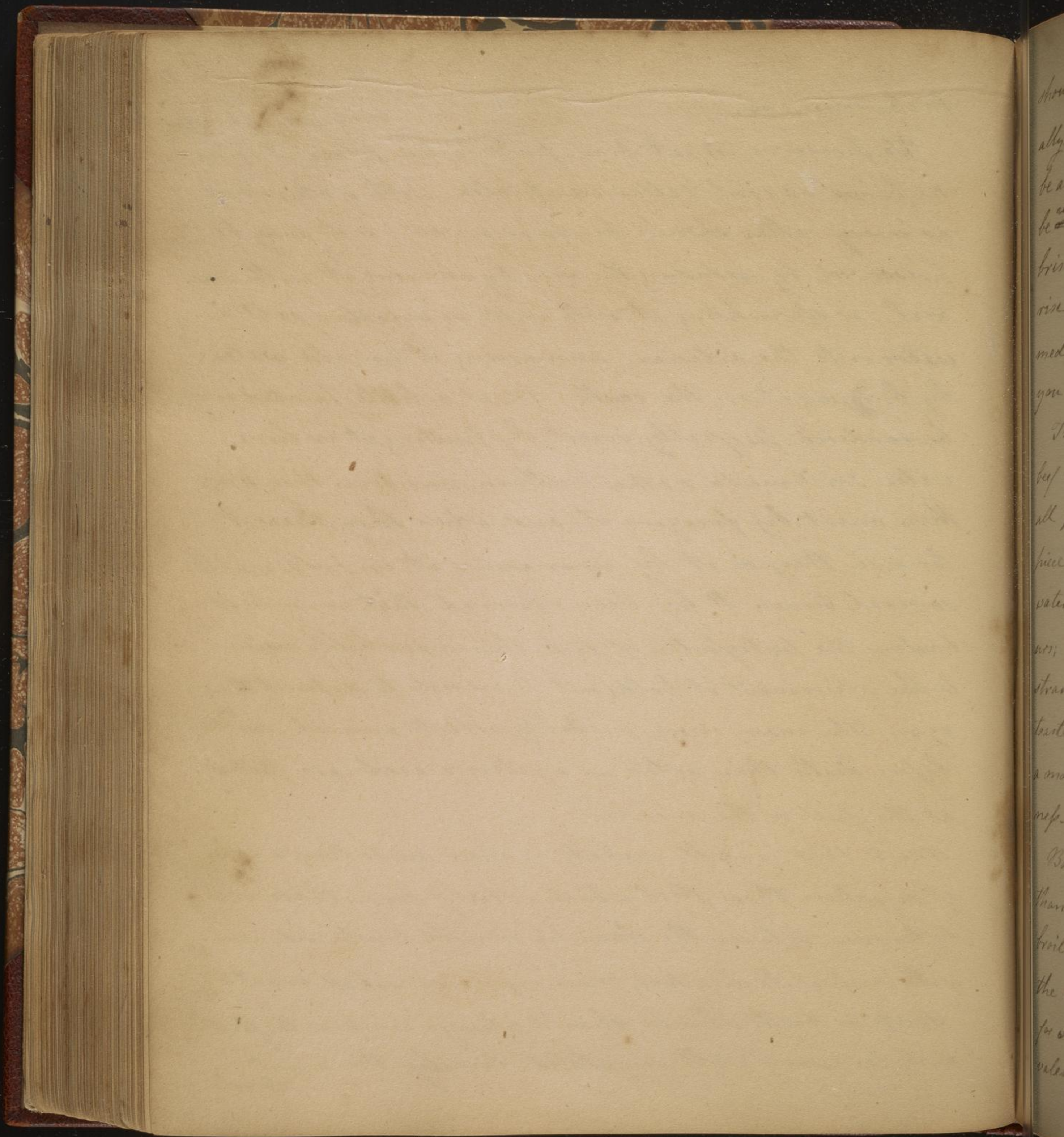
from
re-
as a
pres
coal
water
by
be
water
this
for
seve
haste
to the
eggs
be
at
me
of d
diffe
with
see
hist

pork, onions &c.

To preserve meat from putrefaction place it in an ice-house or coal cellar ventilated with a chimney as every cellar should be, or in a well; or it may be preserved by excluding the air, by covering it with char. coal, or sprinkling it with salt, or injecting salt & water into the arteries, immersing it in cold water, by burying it in the earth. Meat a little tainted may be rendered perfectly sweet by putting it in lime-water. In Canada & other northern countries they keep their meat by freezing it, and when they thaw it for use they do it by immersing it in cold water several times. It has been observed that moonlight hastens the putrefaction of fish; this is probably owing to the allurements it holds out to insects to deposit their eggs. The moon more probably affects animal matter before death than after, as oysters & crabs are fattest at the full of the moon.

Meat that is well cooked is more nutritious & easy of digestion than that which is half done; there is a difference between the stomachs of wild beasts and men, with respect to digestion, man requiring cooked meat.

Soup or broth should always compose the first dish in every well regulated family; the meat should



should be put into the water cold, and warmed gradually, it should be boiled gently, four hours should be allowed for its preparation: just before the pot is to be ~~removed~~^{removed} from the fire it should be made to boil briskly for a short time which will cause the fat to rise to the top of the water, it should then be skimmed off and the pot taken from ~~the~~ off the fire when you will have excellent broth.

The Essence of beef is thus prepared. Take 1 lb of beef having first removed all the fat, cut it up into small pieces and put it into a bottle which cork & tie a piece of linen over the cork and place it in a pot of cold water, heat it gradually and boil it gently for five hours; the liquid is then to be separated from the beef by straining it thro linen or muslin, and taken with some toasted bread or alone, seasoned to suit the patient; it is a most delicious aliment for persons recovering from sickness.

Boiled meat, chicken &c are better for convalescents than that which is roasted. When meat is roasted or broiled a crust is formed on its surface which prevents the escape of the juices and renders it too nourishing for weak people. Baked meat should not be given convalescents for the same reason. Mutton half boiled and
then

⁺ Fish when sufficiently boiled rise & swim on the water
but if the boiling be too long continued they sink again.

^x as convalescents eat less of it than of fresh meat it is more
proper for them, it is also less nourishing.

then broiled it is very nourishing and tender; Geese, Ducks & Fish are best cooked in this way. Cooking meat by vapours, and in stews & harshes renders it agreeable & nutritious. Pot-pye should have paste prepared with flour & potatoes in the same way as for apple-dumplings. Meat cooked in this way is more easily digested than in any other. Paste when simply made is very digestible, and when fruit is combined with it, it is a very proper food for children.

Salted or smoked meat resists putrefaction and is less digestible than fresh, therefore more substantial food for working people, it keeps up the action of the system and prevents dyspepsia. A large quantity of salt applied to meat hardens its surface and prevents the further penetration of the salt in consequence of which the meat spoils. When cut in small pieces it may be preserved by exposure to the sun and air.

Milk contains but little stimulus but a great deal of nourishment; it is most agreeable & most salutary in warm weather. It forms an agreeable desert made into junket. Any of the acids will coagulate the milk but the stomach of the calf is the best, and may be always kept ready for use by taking a calf's stomach which cut into small pieces and put into a quart of

x An ounce of cream of tartar to a quart of milk
make a pleasant whey.

of old madeira wine: two table spoons full of this will make two quarts of the junket. It should be eaten soon or the whey separates. * Cheese is the animal part of milk it contains more nourishment than butter. Whey is a pleasant & simple aliment where milk is too nourishing. Making cows exercise themselves, or rubbing or carding them makes them give more milk & of a better quality.

Eggs are of a compound nature. The yolk possesses animal properties, the white vegetable. The yolk is most digestible, patients can often take it when they cannot the white. Sound ones are distinguished by the ^{large} small end imparting a sense of ^{warmth} heat to the tongue when applied to it, and the air cell is larger. They are a good substitute for cream in tea. They should be cooked in water below the boiling point. They may be kept good a great while by covering them with melted tallow or wax.

Condiments stimulate the tongue, the salivary glands, the stomach and promote the secretion of the gastric juice. They increase the excitement & strength throughout the whole system. They assist digestion, and may enable the stomach to extract more nourishment from the food, but some of them retard digestion. Salt promotes the digestion of fresh but retards that of salt meat.

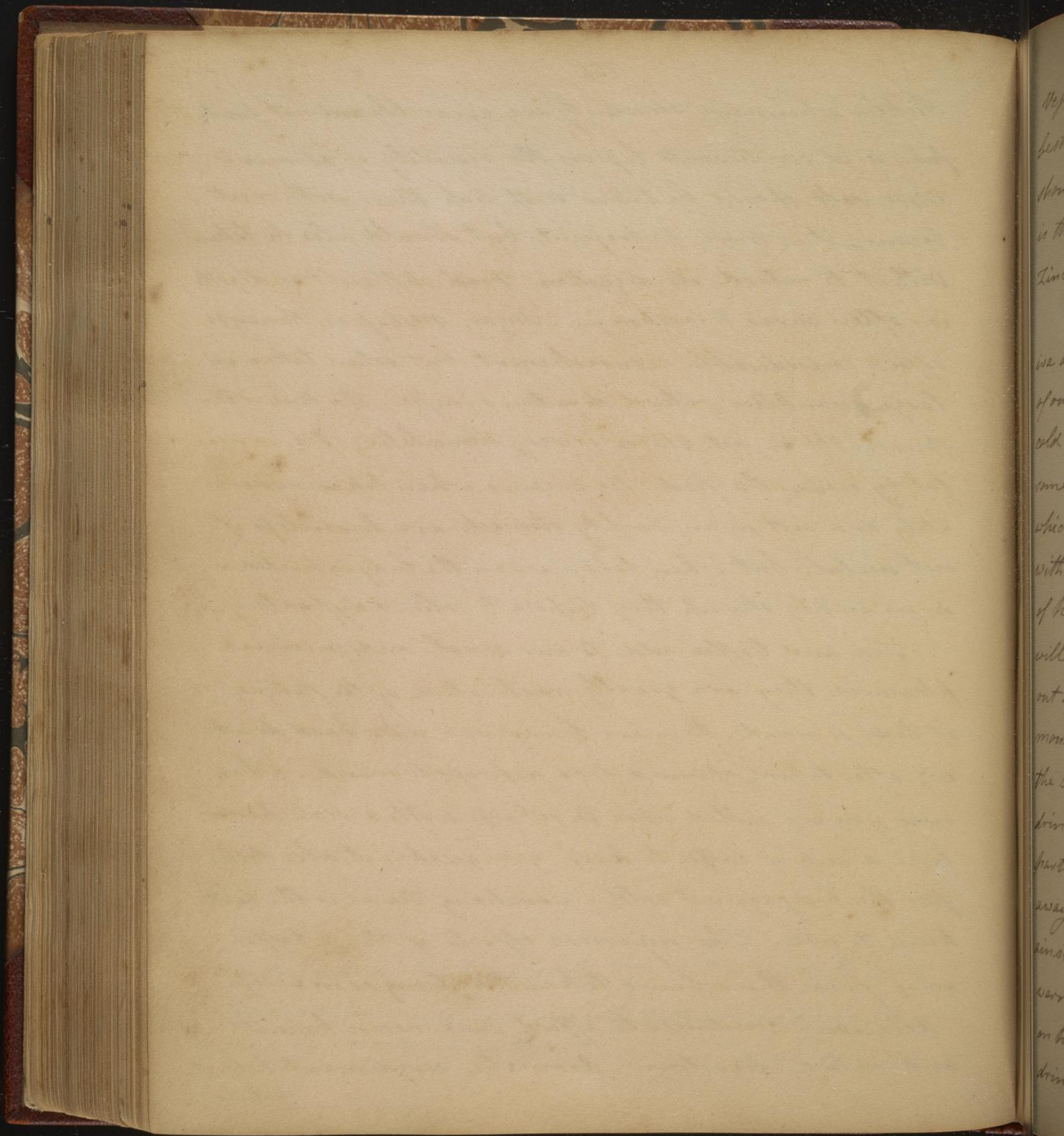
Pickles

^x Coffee acts on the brain only, Tea on the brain & nerves
Therefore when we are kept awake by Coffee we are tranquil,
when by Tea we are restless.

Pickles when used sparingly are agreeable and not hurtful. Acid condiments lessen the viscosity of aliments. More salt should be taken with fish than with meat because it is more putrescent, but should also be taken with it to retard its digestion. Food difficult of digestion often cures Diarrhoea. Sugar, Malasses, Honey &c afford considerable nourishment, but when taken in large quantities retard digestion & impair the tone of the stomach. Old English Cheese is very stimulating. Ice is useful by cooling the food. Ice creams when taken moderately and not on an empty stomach are harmless if not useful, but when taken when the body is heated or on an empty stomach they dispose to colic & dysentery.

Tea and Coffee add to our social and convivial pleasures, they are greatly restorative after fatigue of body or mind. They are beneficial after hard drinking, after taking opium, & for a depressed mind. Whenever you are called upon to sit up with a sick person take a cup of coffee to keep you awake, it also fortifies the body against cold. Souchong Tea is the best kind to use. The injurious effects of Tea & Coffee arise from their being taken too strong or in excess.

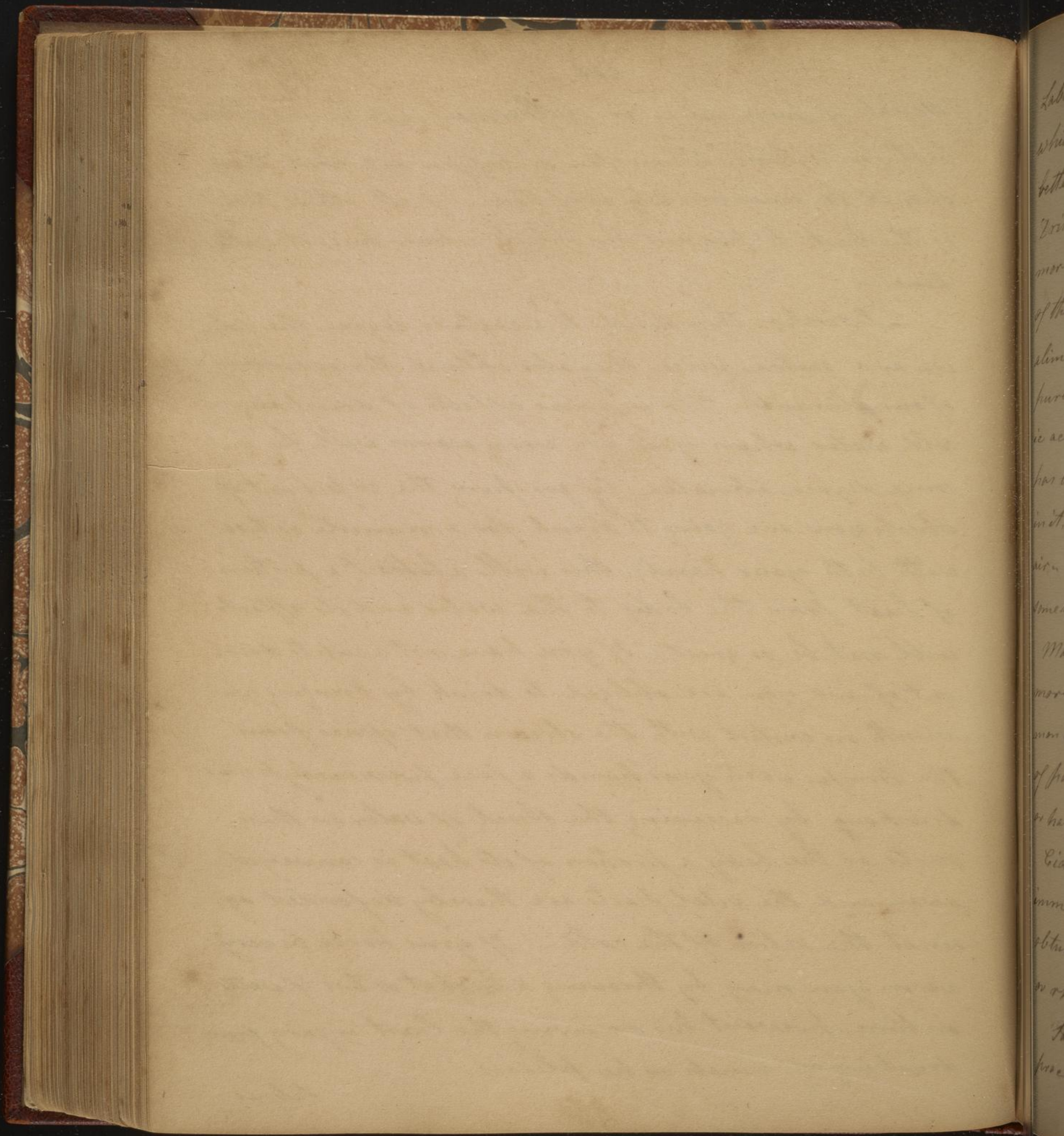
Aliaeous condiments afford some nourishment and retard digestion. Aromatic condiments help it.
Vapels



Vessels of pure silver or earthenware are amongst the best for cooking. When tin or Copper are used they should be immediately emptied. Of all others Iron is the best, to prevent the black colour, line it with Zinc.

Drinks, they dilute to a certain degree the saliva and gastric juice they also obtund the acrimony of our aliments. The injurious effects of drinking cold water when you are very warm will be in some degree abated by grasping the vessel out of which you are going to drink for a minute or two with both your hands, this will abstract a portion of heat from the body to the water and its effects will not be so great. If you have not a cup to drink out of and you are obliged to drink by bringing your mouth in contact with the stream that issues from the Pump, wash your hands & face previously to your drinking; by receiving the shock of water on these parts of the body a portion of its heat is conveyed away, and the vital parts are thereby defended against the action of the cold. If your horse be very warm you may by throwing a bucket or two of water on him, prevent his receiving the least injury from drinking as much as he pleases.

Labours



Labour is much better sustained by drinking water which has been standing a while, and allays thirst better in warm weather than very cold water.

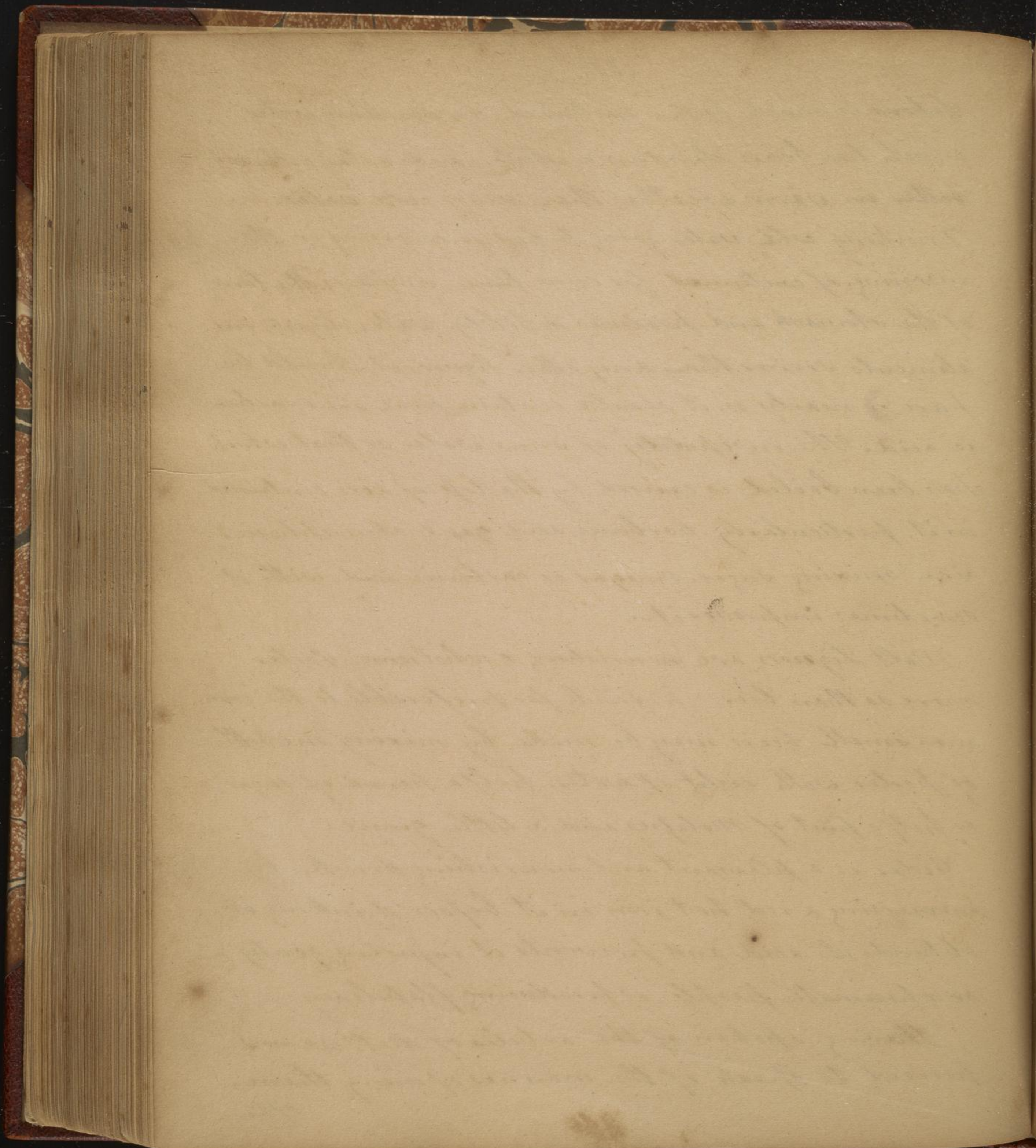
Drinking cold water going to bed or on rising in the morning, if continued for some time, impairs the tone of the stomach and produces debility. Water digests our aliments sooner than any other liquor, it should be pure or nearly so, it should contain some air & carbonic acid. The insipidity of snow water or that which has been boiled is caused by the loss of air contained in it, particularly Carbonic acid gas & atmospheric air. Mixing sugar, vinegar or carbonic acid with it sometimes improves it.

Malt Liquors are nourishing & wholesome. Portes more so than beer. A drink far preferable to the common small beers may be made by mixing one bottle of portes with eight of water, half a pound of sugar or half a pint of Molasses and a little ginger.

Cider is a pleasant and nourishing drink. By immersing a red hot iron in it before drinking, it obtunds its acid and prevents it injuring gouty or rheumatic people, or producing flatulency.

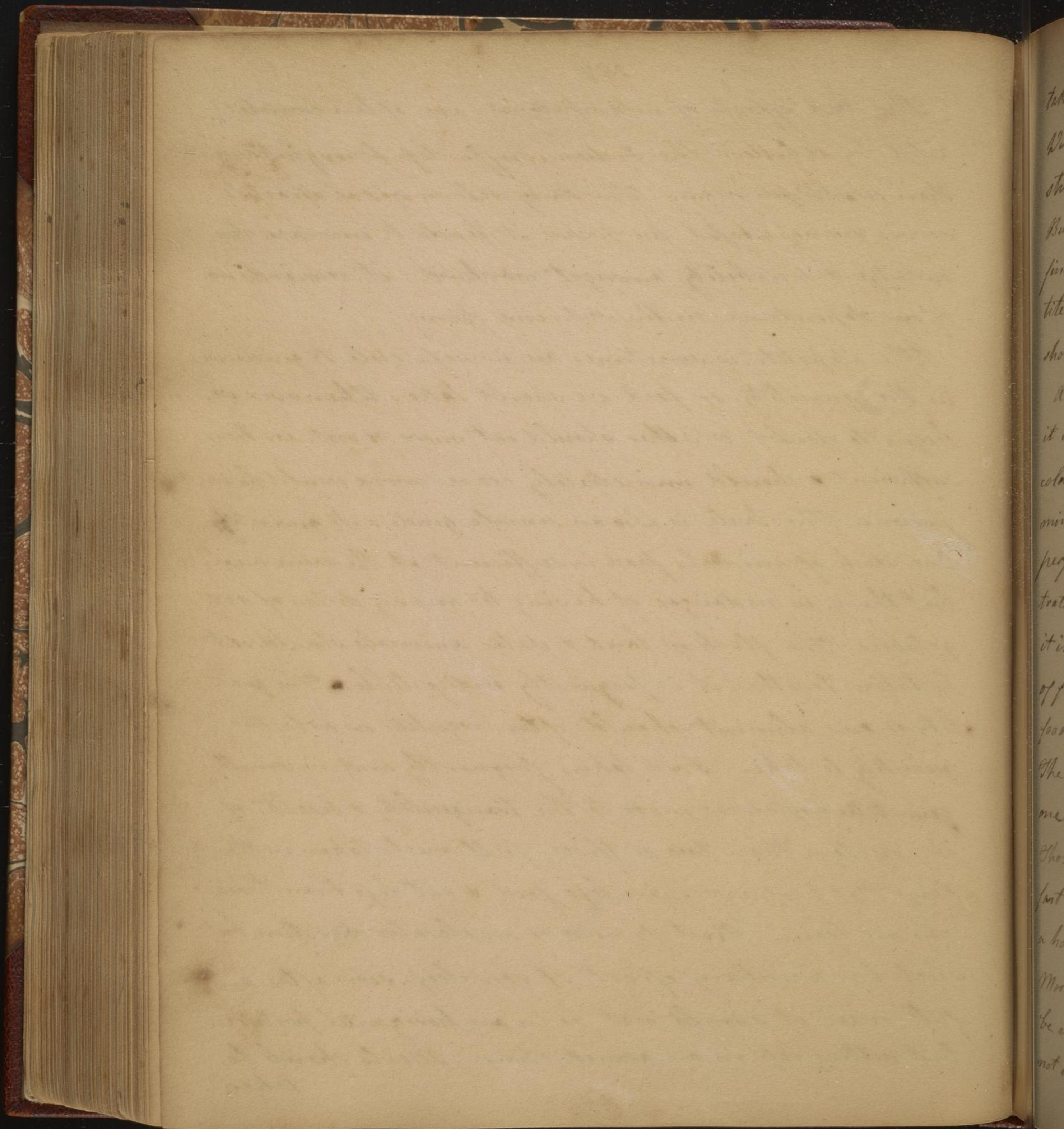
Having spoken of the articles of diet, we now proceed to speak of the manner of using them.

of the



The bad effects of intemperance are often counteracted by labors. The Indians suffer less from gluttony than civilized men. The daily return of our appetite serves many useful purposes; it tends to increase knowledge & sociability amongst mankind; it reminds us of our dependance on the Supreme Being

The appetite is sometimes an unsafe rule to guide us in the quantity of food we should take. Whenever we begin to doubt whether should eat more or not, we have sufficient & should immediately cease, more would be injurious. The taste is also an unsafe guide as to quantity. One dish of animal food is sufficient at the same meals but there is no danger of having too many dishes of vegetables. The flesh of land & water animals should not be taken together, it is frequently indigestible. The quantity of our aliment should often regulate us as to the quantity to take. Food taken frequently and in small quantities conduces more to the tranquility & health of the system than two or three full meals taken in the day. Fat people require less food & eat less than those who are lean. Rest favours or accelerates digestion, but sleep has a contrary effect. If you sleep soon after a full meal it should not be in an horizontal posture, but sitting up in an armed chair. Meals should be
taken



taken regularly, that is, at the same hour every day. Wine and bitters before dinner are improper, they stimulate the stomach beyond the power of digestion. But little drink should be taken before animal food is finished, it prevents digestion and weakens the appetite. The smell of food takes away the appetite, meat should be carved before it is brought on the table.

A little diminution of food or total abstinence from it is sometimes serviceable, especially when we have a cold or slight fever. The quantity of food should be diminished in warm weather, also when we are going to perform any difficult undertaking; if we wish to concentrate all the powers of the system to one single point it is very unwise to give the stomach a large quantity of food to digest. Change of food especially animal food is useful; it increases the pleasure of eating. The practice of eating fish once a week is a very good one. The system should be insured to a change of diet. Those who fare sumptuously every day would do well to fast once a week, according to Dr Franklin it "gives nature a holiday in order that she may clean out all her streets." More than the ordinary quantity of food may occasionally be indulged in, it insures the system to change and is not unfriendly to health. Food should be well masticated
it

[Faint, illegible handwriting in cursive script, likely bleed-through from the reverse side of the page.]

[Faint, illegible handwriting visible on the right edge of the page, likely bleed-through from the adjacent page.]

it digests much sooner. Drinking healths on this account is a bad practice, you are very often obliged to swallow your food before it is sufficiently masticated to answer to the gentleman who accosts you with "your good health Sir"

Aliments should be varied according to age, sex, habits. The diet of children should possess but little stimulus but a great deal of nourishment. Milk, Potatoes & Indian corn are very proper. After they have advanced a few years, they may be allowed Tea & Coffee & boiled meat or Chicken. Salted meat or fish should never be given to them in the morning for breakfast. They should be indulged in eating very often. Sugar is proper for them, I have found a tea spoonfull given in the morning as an anthelmintic more useful in preventing disease from worms than any other that I have tried. Malt liquor & wine may be given to them diluted with water in warm weather. Delicate children should have wine and animal food given them; broth should be preferred to meat and boiled meat to that which is baked or roasted. In middle life attention should be paid to the rules which I have before laid down.

In old age syrups, cordials, meats boiled so as to be easily masticated, tea, coffee &c should be given. Old people

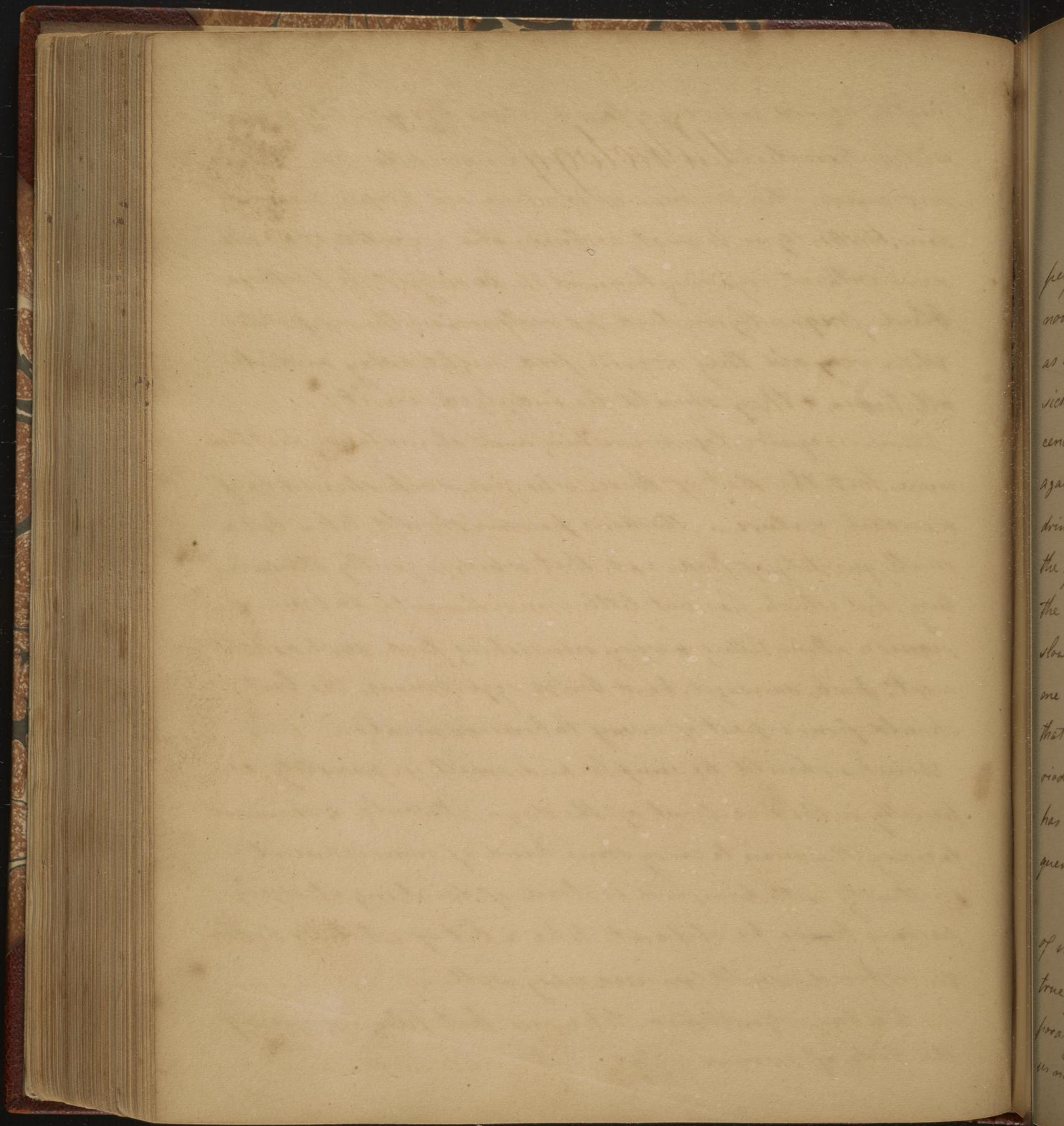
* Water will support life for some time, also Calcareous earth
saw dust, especially of Hickory. Cedar & Sugar Maple is consid-
erably nutritious.

people should eat very often. A much less quantity of liquor will intoxicate them than when in middle life, this is one cause why we hear of so many old people becoming drunkards. You cannot restrain the appetite of an old man without injuring him; if he be subject to plethora bleed frequently instead of restraining the appetite. When very old they require food night & day and at all times, & they should be indulged in it.

Women require less nourishing and stimulating diet than men, but the diet of those who give suck should be of a cordial nature. Studious persons should take but a small quantity of food, and that which is gently stimulating, but which has but little nourishment. Labourers require stimulating & very nourishing food, such as salt meat, pork, sausages, hard boiled eggs, onions, the last should form a part of every labourers meals.

Drinks should be simple and small in quantity especially in the fore part of the day. I would recommend to every Physician to carry some kind of nourishment - constantly with him, and instead of drinking at every persons house he stops at, take a bit of whatever he has. gingerbread would answer very well.

We here, Gentlemen, take our last pleasing view of the body of man.



Pathology

Hitherto we have considered man in a healthy and perfect state as divines viewed him before the fall. We now come to consider him in a diseased & imperfect state as they treated of him after the fall; and as subject to sickness & death, the natural consequences of loss of innocence. In this condition every element in nature conspired against him; the earth & the sea, the air, aliments and drinks, insects and even his pleasures, all seemed to aid the offended majesty of Heaven in destroying or curtailing the limits of human life. Their action at first however was slow & feeble, and some men attained to the age of almost one thousand years, and it was not till after the deluge that human life was curtailed to the present limited period. Many are the causes to which its present brevity has been ascribed, among which are the deluge & its consequent effects. --

The idea that life is a forced state and the effect of impressions is as consistent with religion as it is with true philosophy. Life consists in a strife with or a temporary victory over the causes which produce death. Let us not suppose that the creator delights in the misery of his

Philosophy

What is the nature of the human mind? Is it a blank slate, or is it pre-ordained with certain faculties? This is the question which the philosopher has ever been endeavoring to solve. Some have said that the mind is like a mirror, reflecting the world as it is. Others have said that it is like a lamp, which can be kindled or extinguished. Still others have said that it is like a garden, which can be cultivated or neglected. The truth is, that the mind is a complex and mysterious thing, and its nature is still a matter of debate among philosophers.

The human mind is a remarkable organ, capable of great achievements and great failures. It is the source of all our knowledge, and the seat of all our emotions. It is the power that enables us to create art, to discover science, and to build a better world. But it is also the power that can lead us into error, into despair, and into destruction. We must therefore study the mind carefully, and seek to understand its powers and its weaknesses. Only then can we hope to use it wisely and to live a life of purpose and meaning.

his
in
rep
to
18
of a
Lec
king
by
con
to the
with
affa
out
acts
relie
to be
lish
gret
of ou
mem
physi
How m
creat

his creatures; so far from it all diseases are but blessings in disguise; they are necessary to our general good & happiness, and their uses are of the first importance. They lead us to the study of subjects highly advantageous to the human race.

1 Diseases rendered it necessary for man to undertake the study of anatomy. 2 They promote Physiological knowledge. 3 They lead us to the study of nature in the animal & vegetable kingdoms, without which the works of nature would remain by us unexplored and unadmired, without which we should continue ignorant of Chemistry & Botany. 4 They lead us to the important study of the human mind & furnish us with frequent opportunities for its improvement. 5 They afford numerous exercises for our moral faculties, for without disease there would be no emotions of benevolence or acts of charity, nor should we see Hospitals established to relieve the indigent & distressed. 6 As darkness gives charms to light, in like manner disease is necessary to impart a relish for health. 7 We should not leave this world without regret were there no diseases. 8 They reconcile us to the death of our dearest friends, and sometimes make us rejoice in the moment of their deliverance from pain & suffering. 9 By their physical effects upon the moral faculties they promote virtue. How many owe their virtue to a fit of sickness? The virtue thus created is of a passive nature, which is far superior to active
virtue

virtue. The celebrated Sir William Penn says "He is not so great a man who can do great things as he who can endure them" -

10 Pain alone has numerous advantages, it perhaps contributes to the support of life, it tends to impart vigour both to the mind & body, it is the harbinger or forerunner of disease and assists in pointing out its seat, it prevents intemperance & frequently operates in the cure of diseases. In general those diseases are most fatal which come on without being attended with pain.

Upon the subject of Pathology I have fewer lemons to assist me than on any other part of our lectures. Dr Boerhaave attempted a treatise upon it but soon desisted, and his notions & observations are short and not suited to the present improved state of medicine. Gaubius attempted to reduce it into a system, but he is so full of the humoral doctrine as to be of little utility to the students of the present day.

By Pathology I mean that science which treats of the causes, ^{effects,} seats, and signs of diseases.

The term Disease has had many definitions; according to the least objectionable of them (although it has been rejected by Sydenham) Disease consists in the confused & irregular operations of disordered and debilitated nature.

Causes of Disease.

The different causes of Disease may be divided into the
four

[Faint, illegible handwriting on a blank page, likely bleed-through from the reverse side.]

[Faint handwriting visible on the edge of the adjacent page.]
for
to
cho
can
her
the
the
pro
the

from
only
sub

or the
exce
exci
can

Pro
disea
W
dispo
itself

four following. The remote, predisposing, occasional or exciting, and proximate. They are all different links in one single chain; for instance in inflammatory fever cold is the remote cause, the consequent debility is the predisposing cause, the heat of a stove room or of the sun is the exciting cause, and the convulsive or morbid action of the arterial system is the proximate cause. The action of these causes however is frequently simultaneous. Thus ardent spirits are frequently at the same time the remote & exciting causes of disease.

The history of the symptoms of diseases belongs to the practice of Medicine. I shall mention as few as possible, and only such as are necessary to enable you to comprehend the subject.

By the proximate cause of disease I mean, *Ipse morbus*, or the disease itself. To this definition there are numerous exceptions, but I think it preferable to any other, as for instance excitability which has been called the proximate cause of disease.

I now proceed to make a few general Propositions.

Prop. 1st Debility is the predisposing cause of all general diseases. It is either natural or acquired.

We all bring into the world some debility, and this predisposes to disease. Sometimes it appears even in the womb itself inducing disease there as Epilepsy, Dropsy, Gall stones &c.

Native

* The healthy Diseases, as Sleep, Hunger, Pregnancy &c. are
preceded by debility.

Native debility is sometimes followed by disease as soon as the child comes into the world. It is the consequence of the imprudence or intemperance of mothers, hard labours, ill usage &c. Disease is the natural consequence of life.

2nd Debility is acquired. 1 From injuries received in parturition. 2 From the custom^d washing new born infants with Brandy, soap & water &c. 3 By improper diet, by the passions of nurses or by giving the infant wine or aliment in excessive quantities or such as it cannot digest. 4 By improper drefs. 5 By the imprudent use of opium or ardent spirits. 6 By the premature application of the mind to study, and particularly such as are beyond the comprehension of children. The close confinement of children to seats at school in crowded rooms filled with vitiated air, and the despotism of schoolmasters, are frequent & fruitful sources of debility. 7 By ^{falls} ~~strokes~~ & other accidents, and by blows & pinches from passionate mothers & nurses. 8 By the amusements of children. Thus I have known a gentleman afflicted with a permanent head ach from having been frequently during his childhood lifted up by the hair.

Debility may also be acquired in youth & in adult age. This debility whether native or acquired is often general, but most commonly partial. Accordingly its effects in different parts of the system were called by Galen and the rest

rest of the ancient Physicians, Temperaments; and these were divided into four kinds, 1 Sanguineous, 2 Billious, 3 Phlegmatic, 4 Melancholic.

I object to the term Temperament and substitute that of Predisposition; by which I mean an aptitude to disease from native or acquired Debility.

The Predispositions are 1st The Arterial, Hepatic, 3 Nervous, 4 Muscular, 5 Cephalic, 6 Phrenetic, 7 Alimentary, 8 Lymphatic, 9 Cutaneous; or predisposing debility in the bloodvessels, Liver, Nerves, Muscles, Brain, Mind, Stomach or Bowels, Lymphatics, or Skin.

The Arterial Predisposition may be divided into Pulmonary, Aortic & Uterine, each of which systems may be affected without the others.

In the Hepatic Predisposition the liver is said to be preternaturally large and to secrete too great a quantity of bile. This predisposition exhibits itself in a great variety of ways.

The Nervous Predisposition is discovered by the person in whom it appears being affected by the slightest impressions corporeal or mental. They may be observed to be very happy or very miserable sometimes in the course of one day; they are very subject to be affected with Hysteria - such people may be said to be all nerve.

The Muscular Predisposition is attended with but little

little sensibility and great irritability in the muscular fibres. Persons in whom it appears are very much disposed to action, if they sit down either their hands or feet are in motion, they walk fast, they ride swiftly and may be said to repose only in action. They possess but little mind, and having but little sensibility they are less subject than others to the impressions of pain. The West India Negroes it is said will converse with calmness whilst submitting to an amputation.

The Cephalic Predisposition is attended with aptitude to head ache or vertigo. It differs from the Phrenetic Predisposition in occupying the inferior ^{& interior} parts of the Brain, while the latter occupies the superior portion. People with the cephalic predisposition often suffer a long time with head ache &c without being accompanied with any affection of the mind. Such persons may be said to be all head.

The Phrenetic Predisposition often discovers itself in early life in an uncommon capacity for acquiring knowledge, and when this is indulged the excitability becomes worn down and premature debility, disease & death frequently occur.

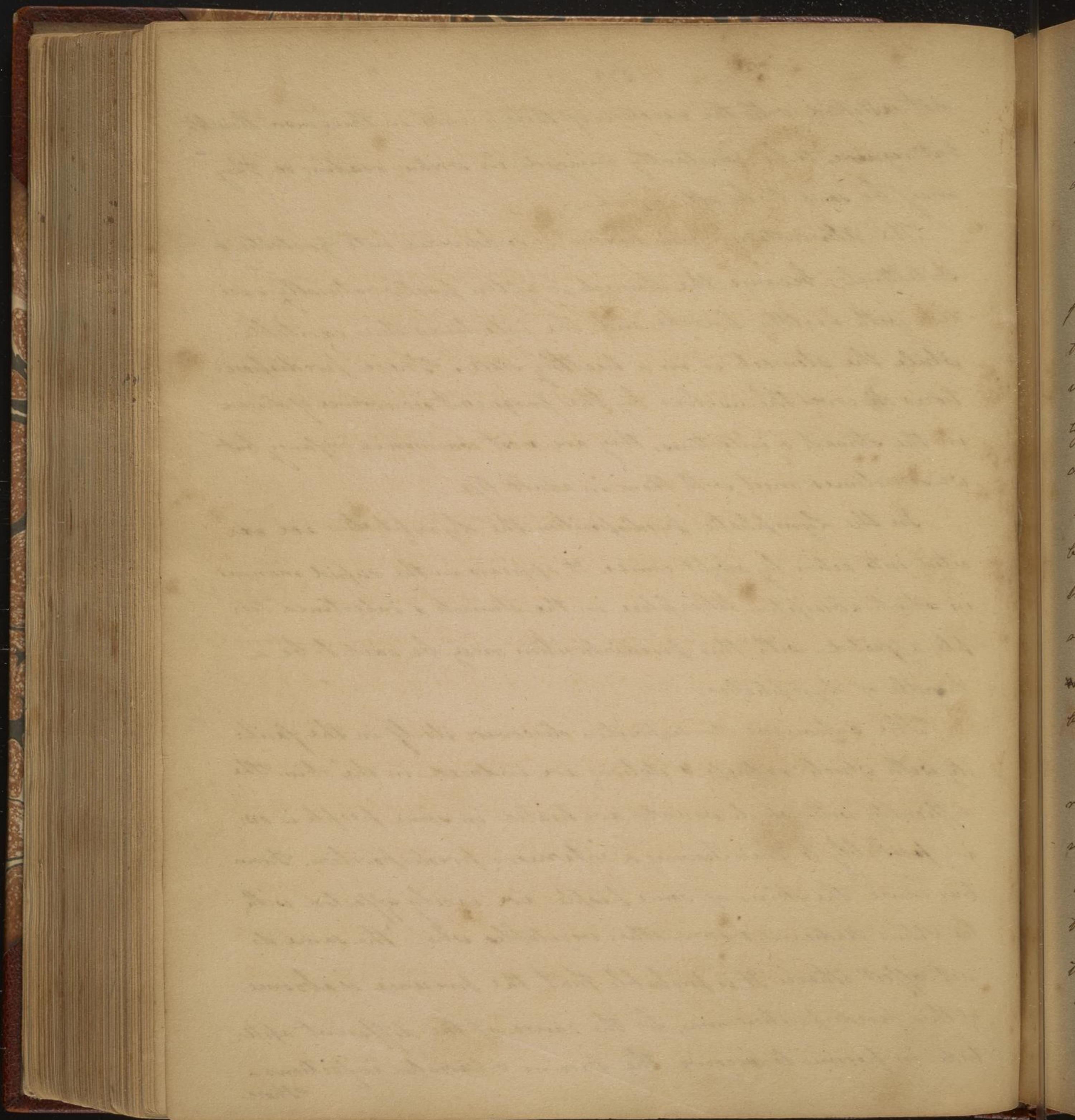
This predisposition appears also in delirium being easily induced by slight causes, fever &c. It is often connected with strong understanding & weak passions, or with strong passions & weak understanding. People with this predisposition require the perpetual operation of strong mental impressions; thus they are not

not satisfied with the exercise of their minds in their own thoughts, but require to be constantly engaged in writing reading &c. They may be said to be all mind.

The Alimentary Predisposition is subdivided into Gastric & Intestinal, because the stomach is often preternaturally excited with healthy bowels, and the intestines thus excitable while the stomach is in a healthy state. These predispositions discover themselves by the frequent occurrence of disease in the stomach & intestines, they are most common in infancy but we sometimes meet with them in adult life.

In the Lymphatic predisposition the Lymphatics are excited into action by slight causes. It appears in the rapid manner in which absorption takes place in the stomach & intestines. People affected with this predisposition may be said to be a bundle of Lymphatics.

The Cutaneous Predisposition discovers itself in the facility with which redness & itching are induced in the skin. The difficulty with which wounds are healed in some people is owing probably to their having a cutaneous predisposition. From this cause the skins of some people are easily affected with the *Rhus Radicans* & some other vegetables, while the same do not affect others. It is probable that the presence or absence of this predisposition may be the cause of the different aptitude in persons to receive the Vaccine & Variolus infections. these



Those who have many of these predispositions or in whom they exist in a high degree may justly be said to be primed with disease.

I now proceed to make a few general remarks.

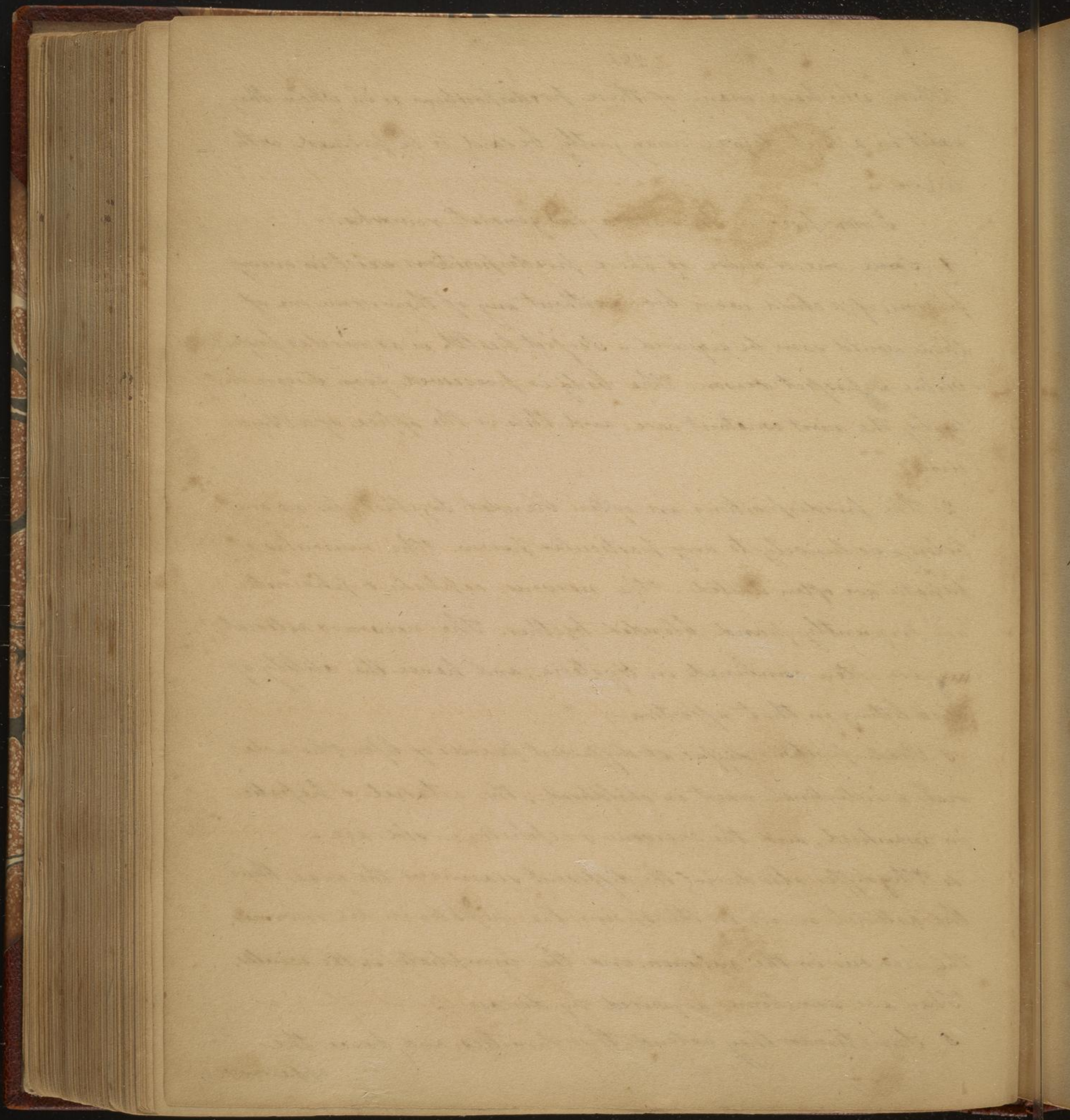
1 Some one or more of these predispositions exist in every person, if a child were born without any of them some one of them would soon be acquired. Perfect health is as rare as perfect virtue or perfect reason. The body is preserved from disease only by the most constant care, and this is the office of a Physician.

2 The predispositions are often blended together, for no one belongs exclusively to any particular person. The muscular & hepatic are often united. The nervous, cephalic & phrenetic are frequently found blended together. The nervous & arterial are often combined in Hysteria, and hence the utility of blood letting in that affection.

3 Predispositions differ at different periods of life. The arterial & intestinal exist in childhood, the arterial & hepatic in manhood, and the nervous & cephalic in old age.

4 They differ also during the different seasons of the year, thus the arterial occurs in the spring, the hepatic in the summer, the nervous in the autumn, and the lymphatic in the winter. They are sometimes acquired by disease.

5 Sometimes they extend thro families, and hence the appearance



appearance of hereditary diseases; but more frequently they are changed by intermarriages.

6 Particular diseases are said to prevail in particular nations & provinces in consequence of the prevalent predisposition; but they disappear by mixture with foreigners, conquerors & emigrants.

7 The variations in the human mind & character depend upon these predispositions. Those which influence the mind are seated principally in the Liver, Brain, Blood vessels and Nerves.

8 A predisposition to disease in one part is frequently accompanied with a preternatural strength or inaptitude to disease in another part or parts; hence we frequently see weak nerves along with vigorous muscles, or weak muscles in union with strong lymphatics.

We therefore see the necessity of studying the predispositions to disease in prescribing remedies. The same causes will produce different effects in persons of different predispositions. Thus four young men of the same age being exposed at the same time to the same degree of fatigue, were all affected differently, and that for the reason I have mentioned.

From this cause Epidemics appear under different forms, and the same remedies will exert very different effects on different persons.

^x And of Tonics in the nervous.

When the Predisposition or Debility is accompanied with excitability, the system is said to be in a laxum state, When excitability is exhausted it is said to be in a strictum state.

From this we perceive the necessity of discovering the pre-dispositions of our patients before prescribing for them. It shews the utility of copious bloodletting in the arterial, Hepatic & Cephalic predispositions. It likewise leads us to consider as empirical all rules for diet &c, which are uniformly the same for different people.

These predispositions I said were attended with debility and excitability; from the influence of time upon them the excitability becomes sometimes exhausted and ceases to be acted on by the common causes of disease, tho the debility may remain; the parts in which the predisposition had resided thus become torpid. We may therefore encourage our patients to look forward to a cure of habitual diseases by this predisposing excitability thus becoming exhausted; I mean such diseases as Gout, Colic, head ache & Epilepsy. We thus see the wisdom as well as humanity of those laws which punish criminals by confinement & labour instead of death; time and solitude may change their predisposition to vice, and they may be restored to society & become moral & useful men.

When excitability exists at the same time with debility the predisposition is said to be in a laxum state; when the excitability is exhausted by time, it is said to be in a strictum state.

The term Disease should be confined to morbid action beyond

^o Diseases when moderate sometimes tend to health, but when violent, always to death.

^x When debility is induced suddenly the excitability becomes suffocated, but by rest it is elicited in an accumulated state.

beyond the healthy grade of excitement.

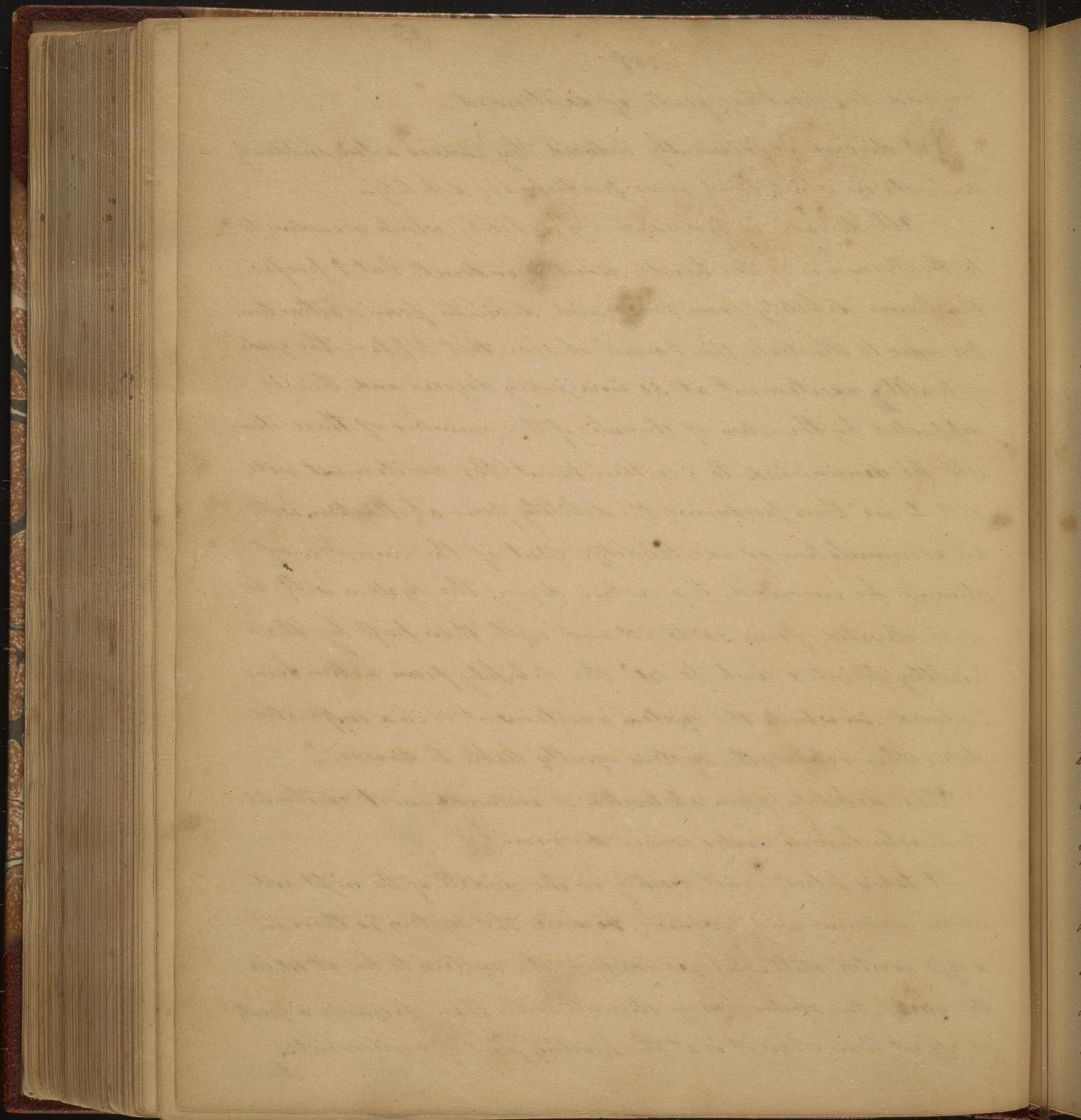
But disease is frequently induced by causes acting suddenly on parts in which there is no predisposing debility.

All disease is preceded by debility, which according to Dr Brown is of two kinds, direct & indirect; but I prefer the terms debility from action, and debility from abstraction. In order to illustrate this I must observe that I place the grade of healthy excitement at 50° imaginary degrees and this is supported by the action of stimuli; if the number of these stimuli be diminished to a certain point the excitement will fall to 40° thus producing the debility from abstraction, with an accumulation of excitability. But if the number of stimuli be increased to a certain degree the system will be first elevated from 50° to 60° and will then pass by the healthy point & sink to 40° the debility from action being induced, in which the ~~system~~ excitement is in a suffocated state. This renders the system equally liable to disease.

The debility from abstraction is induced most easily in those who labour under chronic diseases.

It takes place most readily in the middle of the night and in the morning and evening, because the system is then in a less excited state. Let us suppose the system to be at 40 in the night, the abstraction of stimuli will then produce a greater effect than when it is at the healthy point of excitement.

Im



In old people & children the same causes act more powerfully than in middle life; thus a long walk will frequently produce disease in old or very young persons, while it will not in those of intermediate age.

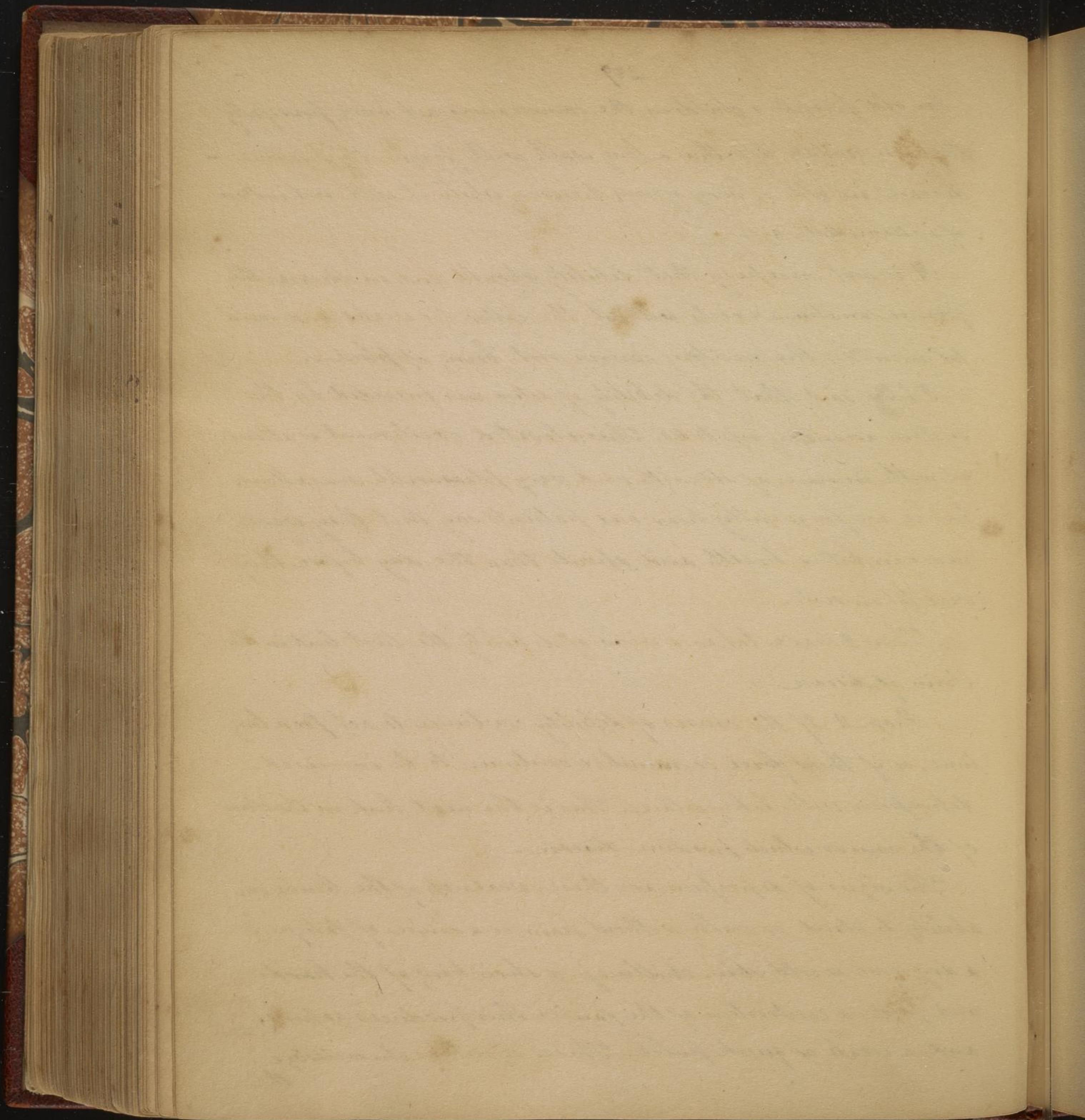
It is not necessary that debility should end in disease; the former sometimes exists without the latter for weeks and even for months; the exciting causes not being applied.

I have said that the debility of action was preceded by the system ascending up to 60. This elevated excitement is attended with increase of strength, and very pleasurable sensations; hence we frequently hear our patients say that they were never in better health and spirits than the day before they were taken sick.

Thus I have taken a view of debility the first link in the chain of disease.

Prop. 2 If the causes of debility continue to act for a long time, or if their force or number continue to be increased, depression will take place. This is the next link in the chain of the causes which produce disease.

The signs of depression are these, weakness of the limbs, inability to stand or walk without pain, or a sense of fatigue, a dry, cool or cold skin, chilliness, a shrinking of the hands and face, a contraction of the fauces, this produces gaping, and a weak or quick pulse. These symptoms characterize the



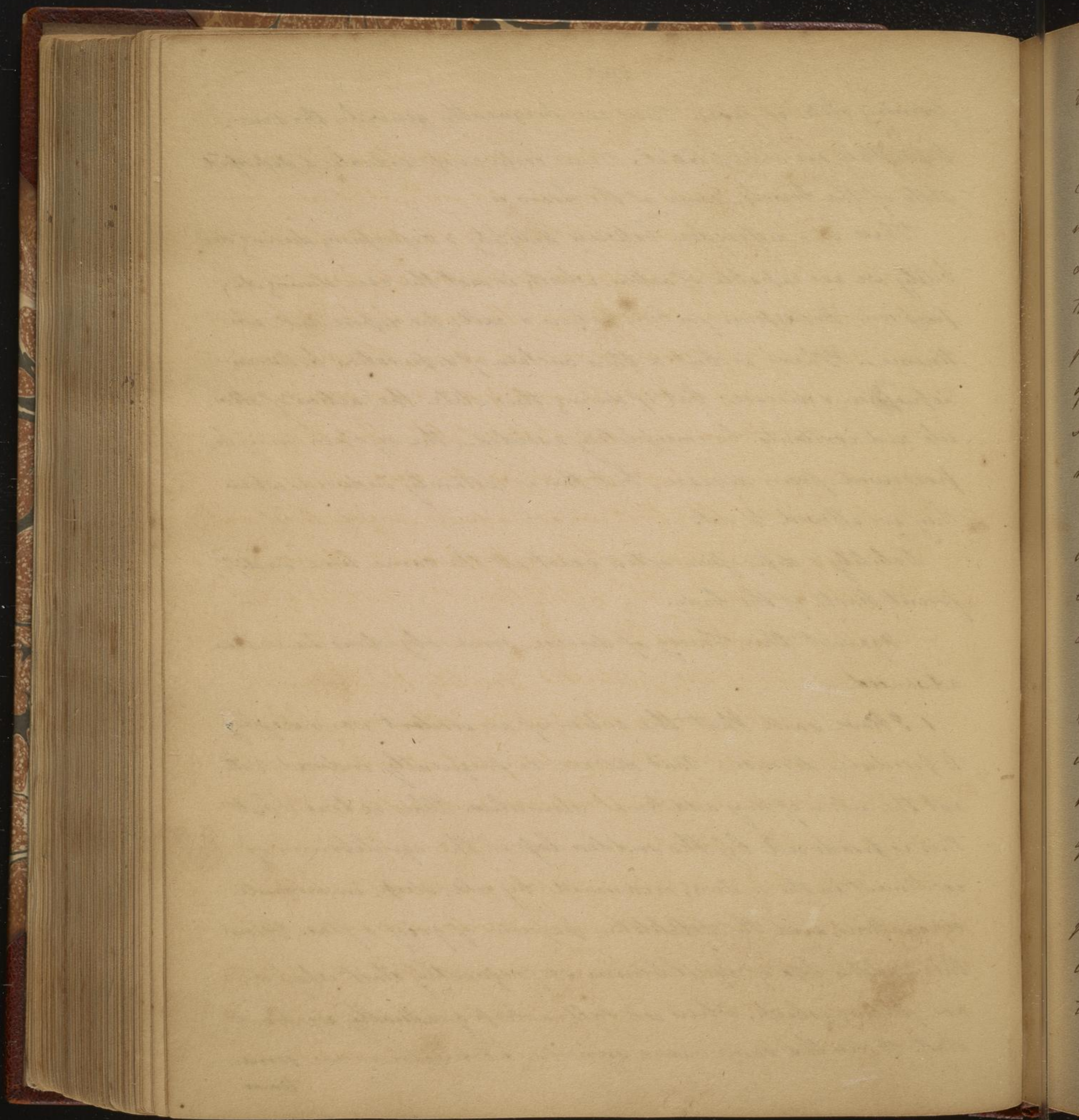
forming state of fever. They are frequently general, tho sometimes they are only partial. Thus costiveness indicates a depressed state of the bowels, coma of the brain &c

There is a difference between debility & depression, during debility we are capable of action, which is not the case during depression. Depression forbids action & calls for repose and abstinence. There is but a thin curtain of separation between depression & disease; but if during this state the action of stimuli and irritants be completely avoided, the system may be preserved from disease, but this is certainly induced when they are allowed to act.

Debility & depression often exist at the same time in different parts of the body.

Against this Theory of disease some objections have been advanced -

I have said that the action of an irritant was necessary to produce disease. But disease is frequently induced without the action of any additional stimulus. This is true; but this is produced by the sudden loss of the equilibrium of excitement in the system, occasioned by cold, sleep, immoderate evacuations, and the debilitating passions of grief & fear. From this sudden loss of equilibrium we frequently start when we are falling asleep, when we fall asleep gradually we do not start. From the same cause syncope & convulsions are sometimes



times induced by bloodletting.

2. I have said that the predisposing debility will sometimes continue for days, weeks or even months without disease being induced; when it is thus protracted or becomes chronic, the excitability of the system is expended and stimuli have nothing to act upon. This will be still more the case if the debilitated person be exposed to labour or exercise during the continuance of the debility. Thus soldiers, when they are kept marching, are seldom affected by disease, and it is not till they stop and remain encamped that it commences its career.

It is to prevent this that we are advised never to sit down immediately after a long walk or a hard ride. Fevers generally attack us during the night, from the excitability being accumulated during sleep.

In these cases of long protracted debility the system is reduced to the state called *striction* by *Themison*, or that in which the excitability is exhausted; but stimuli are not harmless in such cases for they induce disorder in the forms of *Torpor*, *Stupor* & *Imertia*.

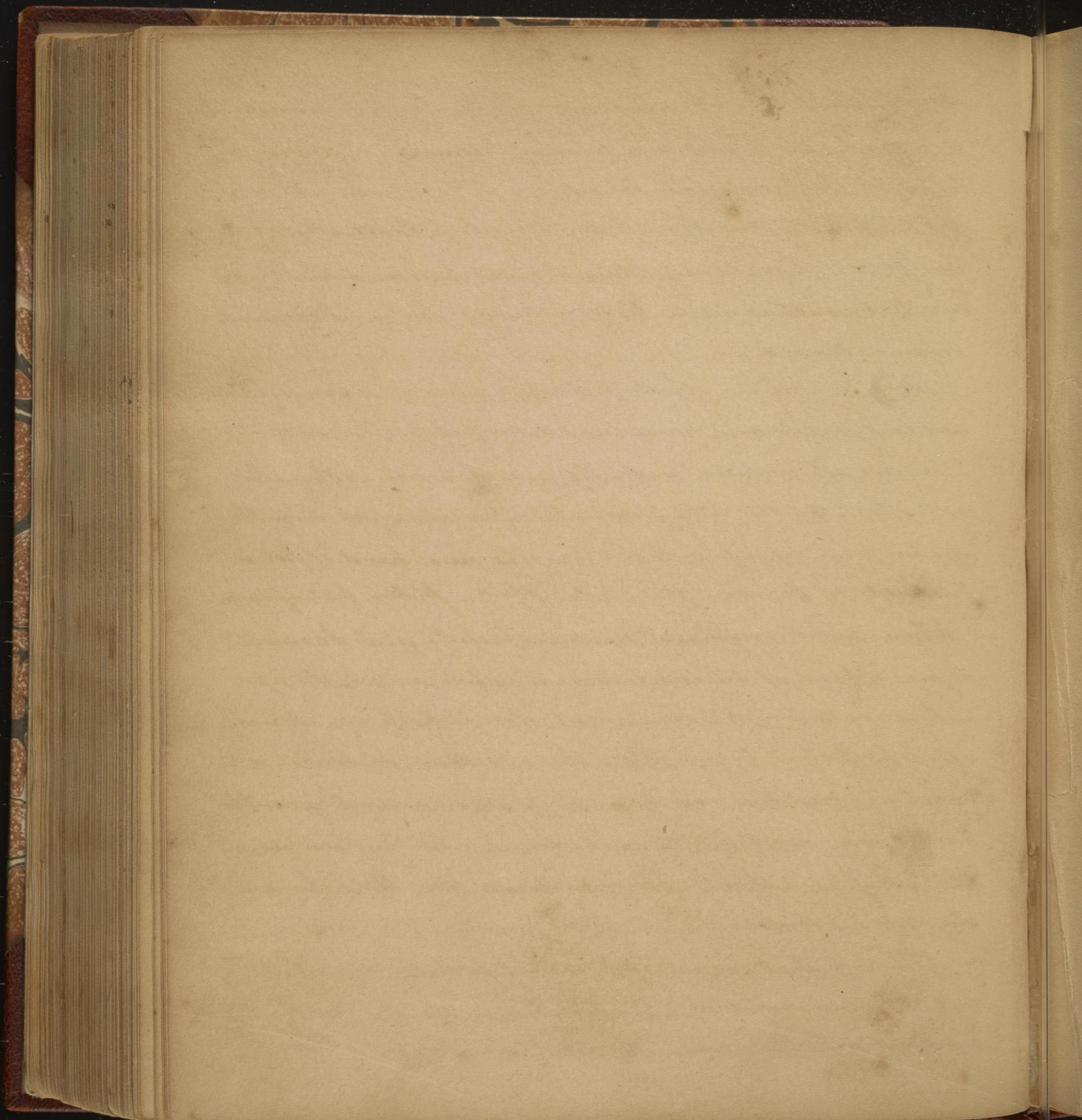
The term *Torpor* implies a deficiency of irritability, *Stupor* a deficiency of sensibility, and *Imertia* a defect of both irritability & sensibility. Dr Boerhaave & Dr call this Disease, but I call it only Disorder. This is occasioned by the excitability being so much expended that morbid action cannot.

cannot take place. When this occurs in the limbs Rheumatalgia is induced, which implies a torpor in the limbs. - I call that torpor of the Brain which takes place after a long continued action ~~in~~ ⁱⁿ it, Manalgia. The state which occurs between the morbid or high grade of excitement, and disorder, I shall designate by another name terminating in icula, as Manicula, Rheumaticula &c.

Prop. 3 All the remote & exciting causes of disease, of what ever kind and however numerous & diversified are but an unit. They are all included under the general name of Stimulus or irritant. By the latter I mean those causes which carry the system from depression to disease. The same kind of fire is produced by the sun, the Electric fluid, friction, percussion &c.

When morbid excitement occurs, especially if it be in a high degree, a kind of delirium invades the whole system, old associations are destroyed; excitement & excitability are in unequal proportions to each other; the fluids are obstructed & sometimes run thro new channels, or in an unusual quantity thro old ones; error loci becomes general; the system appears like a ship in a storm, nature is driven from the helm and she loses her course.

This is a short account of disease. I formerly remarked that it seldom existed in a simple state in the body; it is often combined with the remains of depression or debility. Thus in



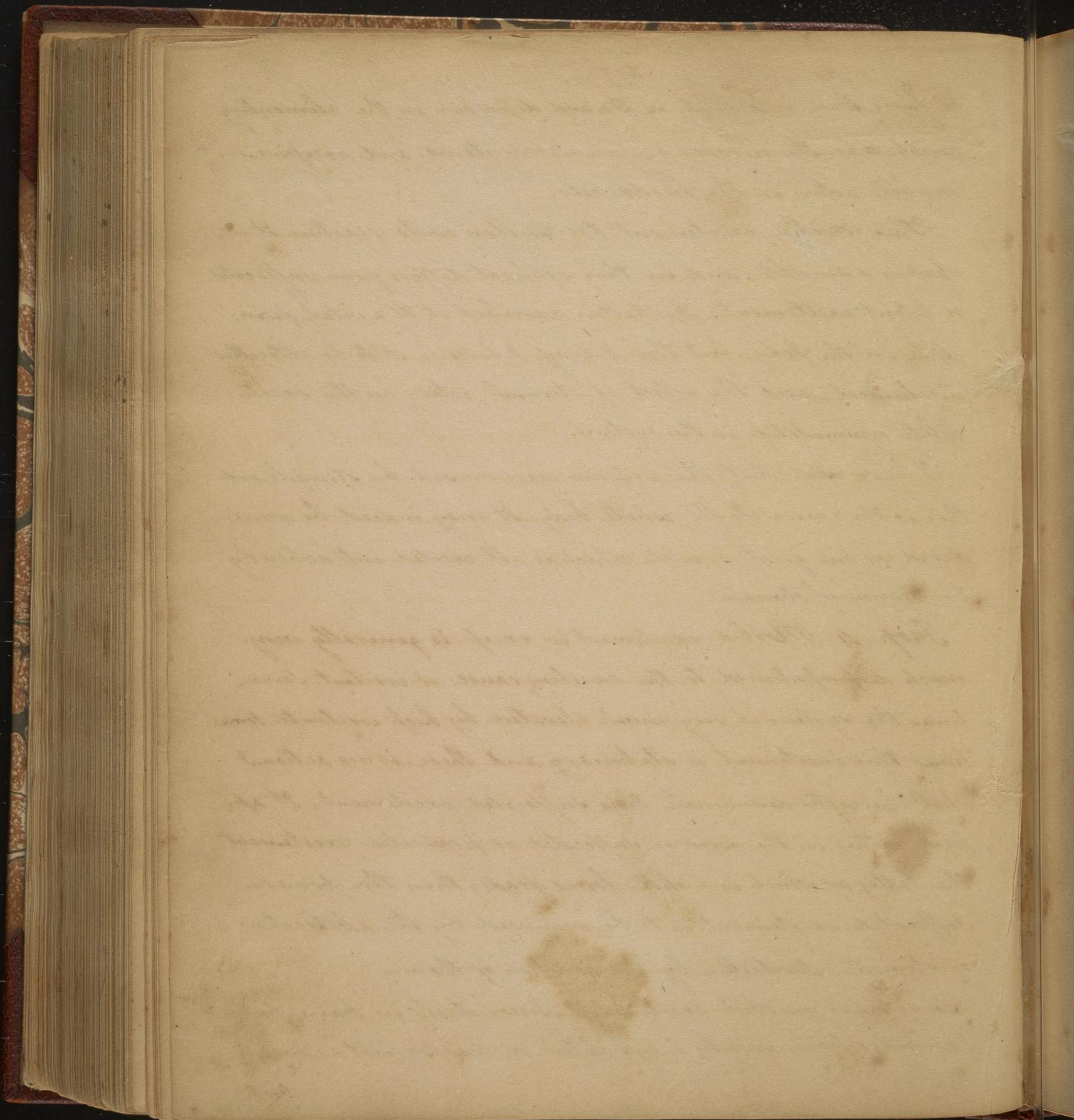
a fever there is debility in ~~the~~ and depression in the alimentary canal, & in the nervous & muscular systems; and excessive morbid action in the bloodvessels.

This morbid excitement Dr Cullen calls reaction. It is obvious & sensible, and in this respect differs from suffocated or latent excitement. Dr Cullen ascribed it to a vital principle in the body, but this I deny, I believe it to be altogether mechanical, and the effect of stimuli acting on the excitability accumulated in the system.

I have said that the arteries were moved by stimuli, and this is the case with the whole body. It may indeed be considered as one great muscle which is all excited into action by the agency of stimulus.

Prop. 4 Morbid excitement in excess is generally very much disproportioned to the exciting cause or irritant. Sometimes the system is very much elevated by high irritants. Sometimes this excitement is stationary and there is no action. I shall hereafter denominate this, suffocated excitement. It appears either in the form of suffocated or prostrated excitement, the latter of which is a still lower grade than the former - suffocated excitement is to be removed by the abstraction of stimuli, Prostration by the addition of them.

Sometimes morbid excitement shews itself in pain, but I consider pain as only a symptom of disease not as disease itself.



Prop. 5 Disease is always partial. I know of no disease that invades every part of the system at the same time; in fever it is confined to the bloodvessels, in mania to the brain, in Dysentery to the intestines. The art of healing consists in restoring this excitement to an equilibrium, and not in removing debility alone as taught by Dr Brown.

But this morbid excitement does not exist only in a single part.

The absence of excitement in a part seems to have the effect of inviting it to that part.

There does not appear to be any accumulation of excitement in the whole body, but that the same degree of it which previously existed in the system, is in disease unequally diffused. In malignant fever the excitement is five or six times greater than natural in the bloodvessels, while the muscles are proportionably depressed. — In Tetanus the excitement is extremely great in the muscles, but very low in the bloodvessels. —

Prop. 6 There is but one Disease. However strange & paradoxical it may sound, I repeat it. there is but one disease! and that disease is morbid excitement. No matter in what part of the body it may appear, whether in the bloodvessels, intestines or muscles. Though it may exhibit itself under different forms, according as it is seated in different

Water in the ventricles of the brain is
the result of inflammation ~~and~~
~~the result of inflammation~~

* Obstructions, Calculi, Schirri &c.

ent parts, yet it is still only morbid excitement.

I remarked that disorder was the effect of disease; it frequently exists in different parts of the body without being accompanied by disease. The accumulation of a fluid in the ~~Arteries~~ ventricles of the brain which is a disorder, is the effect of Hydrocephalus internus which is a ~~disease~~ form of disease.

These disorders when long continued act as irritants & produce disease.

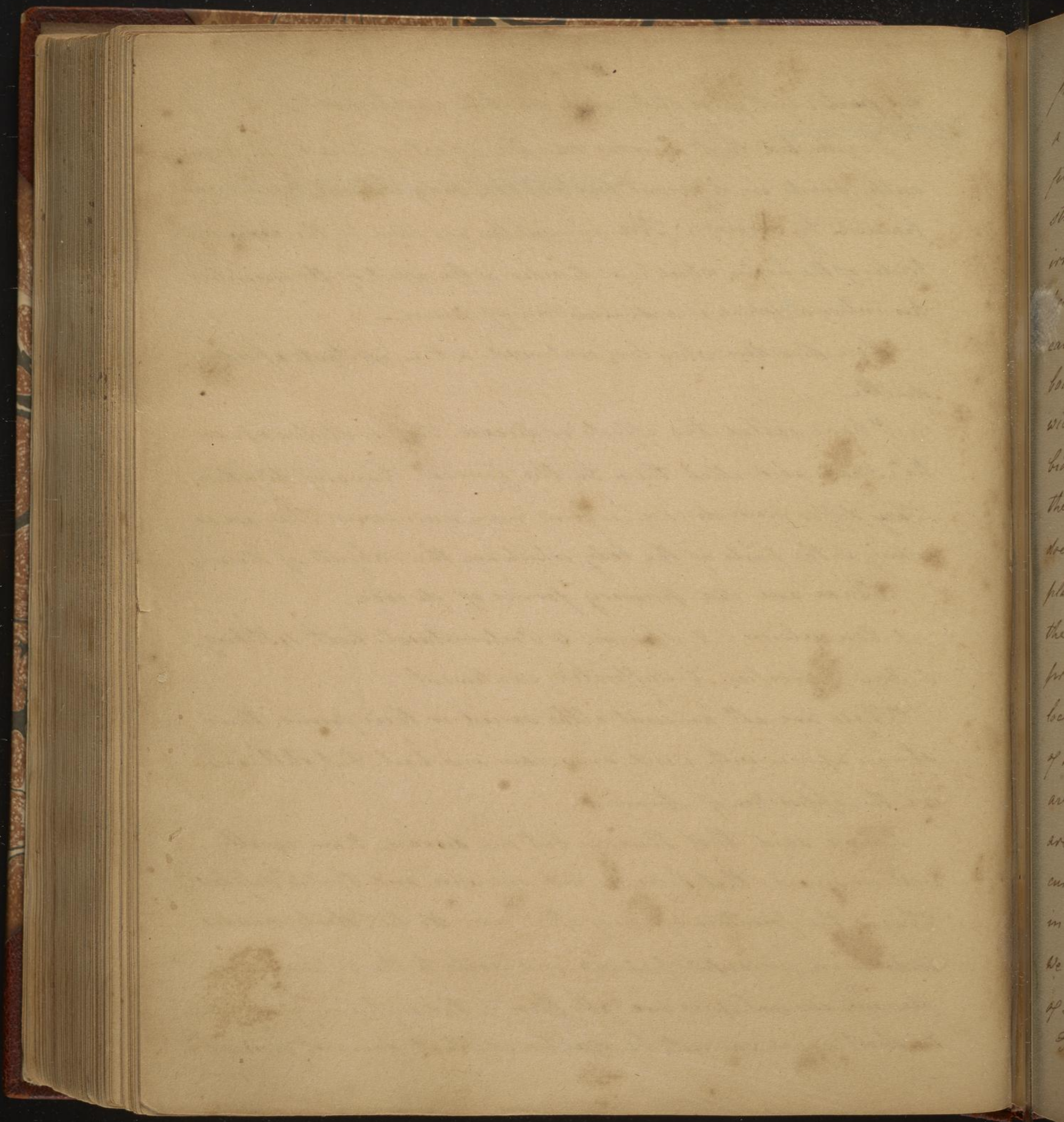
I have called the effects of disease Torpor, Stupor & Inertia; I have also called them by the general name of disorders. They differ from disease in being more numerous. They are as many as the parts of the body which are the subjects of disease.

There are six primary forms of disease,

1 Convulsion, 2 Spasm, 3 Preternatural heat, 4 Itching, 5 Acria Dolorifica, 6 Suffocated excitement

These are all an unit altho varied in their forms; thus storms appear with wind, snow, rain and hail but still receive the appellation of storms.

I have said that there is but one disease, I am equally well convinced that there is but one sin, and that is "Self love." This is the fountain of every other sin. We lie, steal, murder, indulge in unlawful passions, and yield to the influence of ~~pleasure~~ sensual pleasure; all through the influence of self love. In short a vice cannot be mentioned that does not proceed from



from that as a source. It is justly said that every vice is only a dislocated virtue. The idea of the unity of disease is confirmed by analogy.

1 So bodily disease produced by stimuli? so is mental disease. 2 So bodily disease attended with irregular action? so is mental disease. 3 So bodily disease disproportioned to its exciting cause? so is mental; from what slight causes do hatreds, jealousies, duels and murders arise! 4 So bodily disease partial? so is that of the mind; even the most wicked men are not totally destitute of virtue. 5 Does morbid excitement pass suddenly from one part of the body to another? so do different affections of the mind. With what rapidity does love pass into hatred or jealousy. 6 Does bodily disease take place from the mere abstraction of bodily excitement & without the addition of any stimulus? so does moral evil, and this proves that God created no evil principle. 7 Does error take place in bodily disease? so it does in the faculties of the mind; self love occupies the place of love of the Deity, avarice of economy; and prodigality of liberality. 8 There are different forms of bodily excitement, and the same occurs in that of the mind; thus we see convulsions occurring in anger &c. 9 So bodily disease followed by ~~the~~ disorder? — we see the same occurring in the moral faculties. One effect of sin is to render the conscience torpid.

There are many other analogies which support the idea of the

⁺ or oppression, preventing morbid action, ^{until} ~~the~~ the excitement is let loose by depletion.

^o or where ~~the~~ Disease has been passed over.

the unity of disease; thus ~~and~~ the different faculties of the mind, are all modifications or forms of one mind. Even in the God head we find unity in Trinity. Unity in cause, and variety in effect is stamped upon the whole creation.

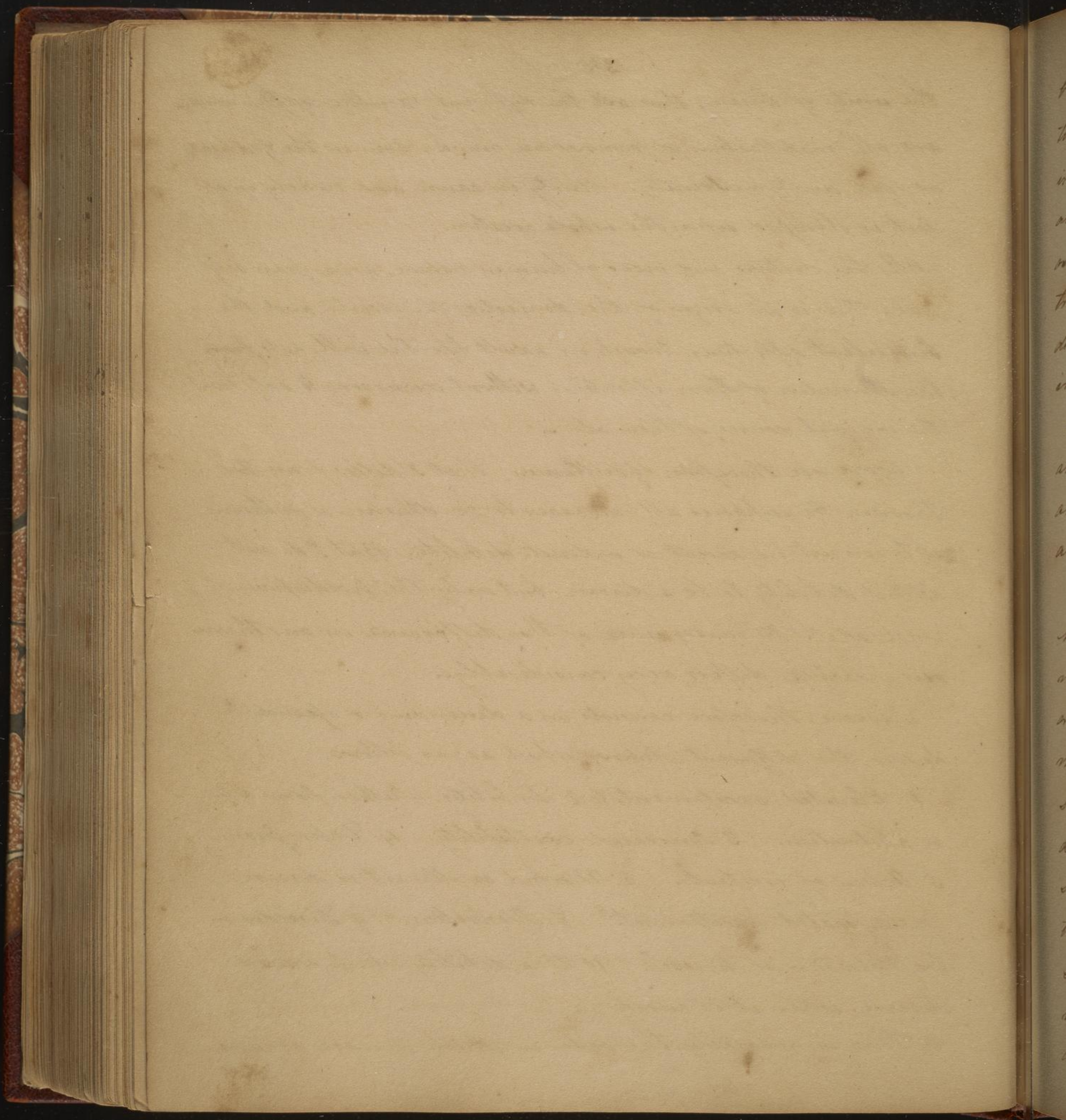
All the virtues and vices of human nature arise from self love. This is the origin of the domestic, the social, and the benevolent affections, though in adult life the will acts from the stimulus of those affections without recurring to self love the original source of them all.

You see therefore, Gentlemen, that I differ from Dr Brown. He supposes all diseases to be sthenic or asthenic, or to consist in direct or indirect debility. But I do not admit debility to be a disease, but only the predisposing cause of it. In consequence of this difference in our theories our practice differs very considerably.

Disease therefore consists in a descending & ascending ladder, the different steps of which are as follows,

1 Elevated excitement. 2 Debility, whether from action or abstraction. 3 Increased excitability. 4 Depression. 5 Action of irritants. 6 Morbid excitement or disease. 7 Suffocated excitement.* 8 Prostration. 9 Disorder on the cessation of disease. 10 The debility which succeeds disease when it is cured.

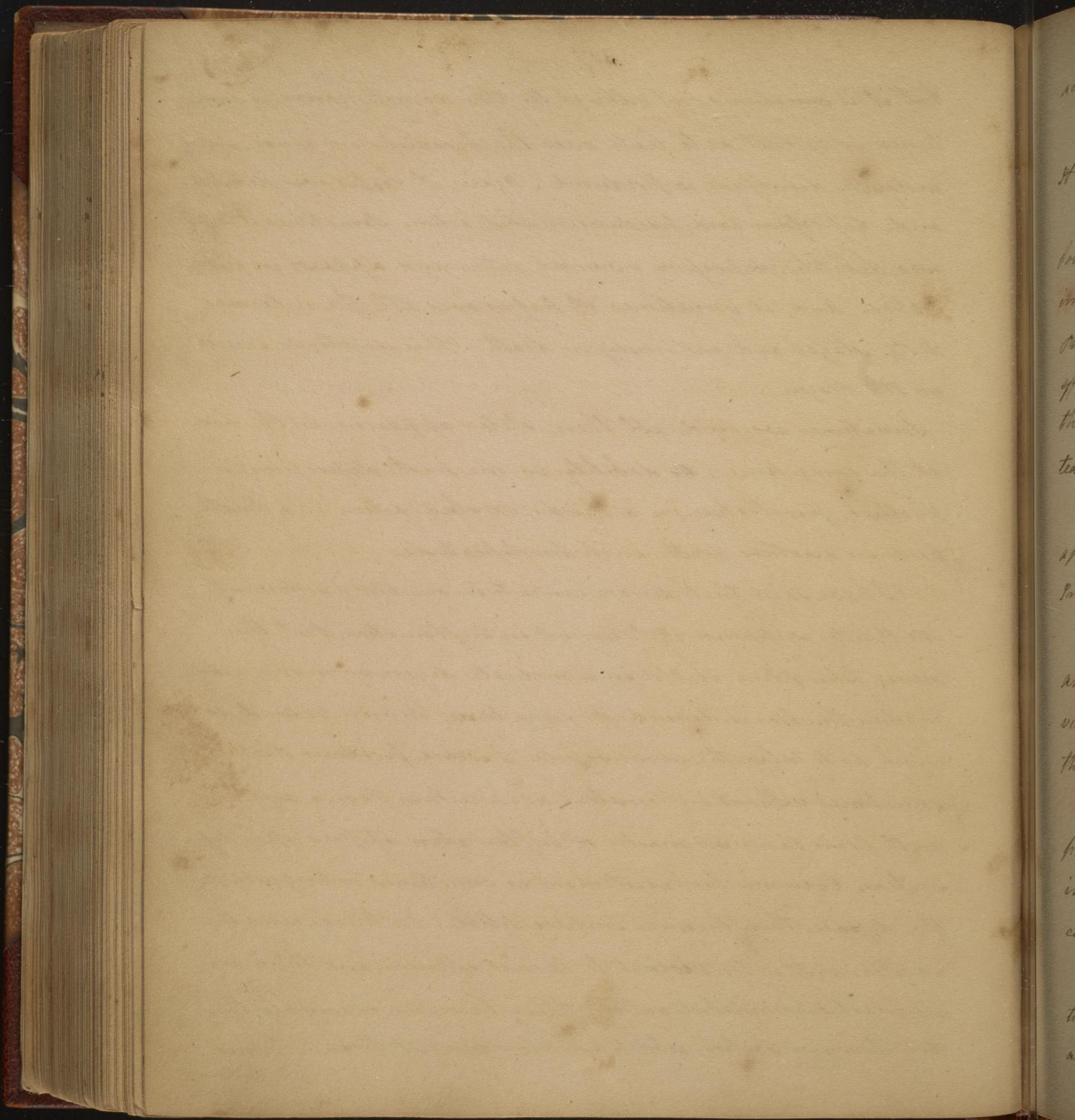
This is generally the order in which disease occurs,
but



but it is sometimes not adhered to. The remote cause is sometimes so violent as to leap over the predisposing cause, and instantly depression is produced. Again it leaps over debility and depression and produces morbid action. Sometimes it leaps over debility, depression & morbid action and appears in prostration. And it sometimes ~~it~~ passes over all the intermediate stages and ends only in death. This sometimes occurs in the Plague.

Sometimes we find all these states appearing in the body at the same time; as debility in one part, depression in another, prostration in a third, morbid action in a fourth, and in another death, as in mortification.

I have said that disease consists in morbid excitement. Mr Hunter supposed it to consist in inflammation, but this never takes place except in a moderate degree of morbid action, or when this has continued for some time, or been reduced so much as to relax the serous vessels. Disease produces death sometimes without inflammation, as in certain fevers, and after death from them no marks of inflammation appear upon dissection. Even morbid excitement is sometimes extinguished, the disease then becomes imperceptible. In these cases the excitement is too violent to favour effusion, and there are no marks of morbid action. They therefore resemble the dry storms of sailors, which are more violent than storms accompanied



accompanied with rain.

Convulsion occurs in Epilepsy, in Fevers and in Tetanus. It is principally confined to the bloodvessels & muscles.

Spasm occurs in the muscles as in cramp, in the stomach, bowels & trachea; in the lungs as in asthma, in the uterus in parturition, and in the Brain in head ache & apoplexy. Perhaps it sometimes takes place in the whole body as the effect of fear. Spasm is divided into Tonic & Clonic, in the former the spasm is constant; in the latter it is alternated with relaxation, this appears in parturition.

Preternatural Heat is either external or internal; the former appears in the skin, the latter in the stomach & bowels. In the yellow fever there is preternatural heat in the stomach.

Itching occurs in various parts of the body as the skin, anus, pudenda &c. It is sometimes a symptom of a more violent form of disease, and is a favourable one as it shews the disease to be in a declining state.

Aura Dolorifica, or "go and come" as it is often called; is a pain passing through the body like the electric shock; it appears in almost every part but most commonly in the cheeks and calf of the leg. It is seen in Gout and Tic Doloroux.

Suffocated excitement consists in such an accumulation of ~~excitability~~ morbid excitement as to suspend motion, and sometimes heat and perceptible sensation. It occurs in
the

* I do not therefore include them amongst the forms of Disease.

the Lungs, Brain Bloodvessels &c, and discovers itself in malignant fevers. It is removed by the abstraction of stimuli, and the pulse rises into morbid action.

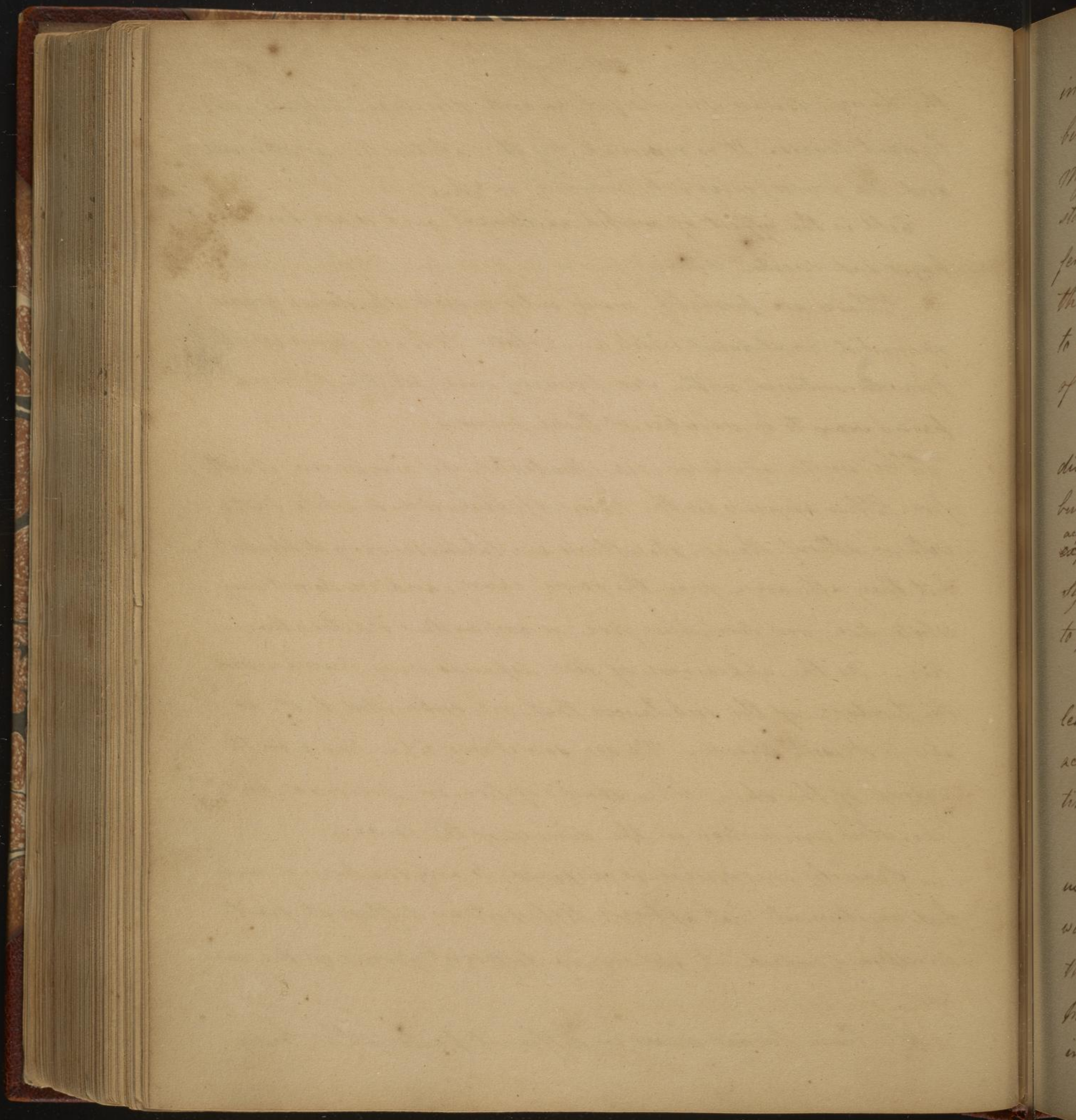
Cold is the effect of morbid excitement and so are hemorrhages and sweats.*

There are probably many intermediate shades or grades of morbid excitement which are related to these forms which I have mentioned as the six primary ones; all the different pains seem to be varieties of these forms.

The unity of disease is illustrated by comparing it with fire. This appears in the forms of blue, red or white heat, with or without flame; its effects are likewise very different, but they all arise from the same cause, and we do not say white fire, red fire, blue fire, or expanding & detonating fire. As the appearance of fire depends very much upon the texture of the substances that are submitted to it, so also is it with disease. We see something like flame in the redness of the skin, like sparks of fire in Doloroux, and like slow combustion in the diseases of the bones.

Scarcely one disease is confined to any one form of morbid excitement, but appears different in different parts; sometimes indeed it appears in different forms in the same part.

All these forms occur in different parts of the body
in

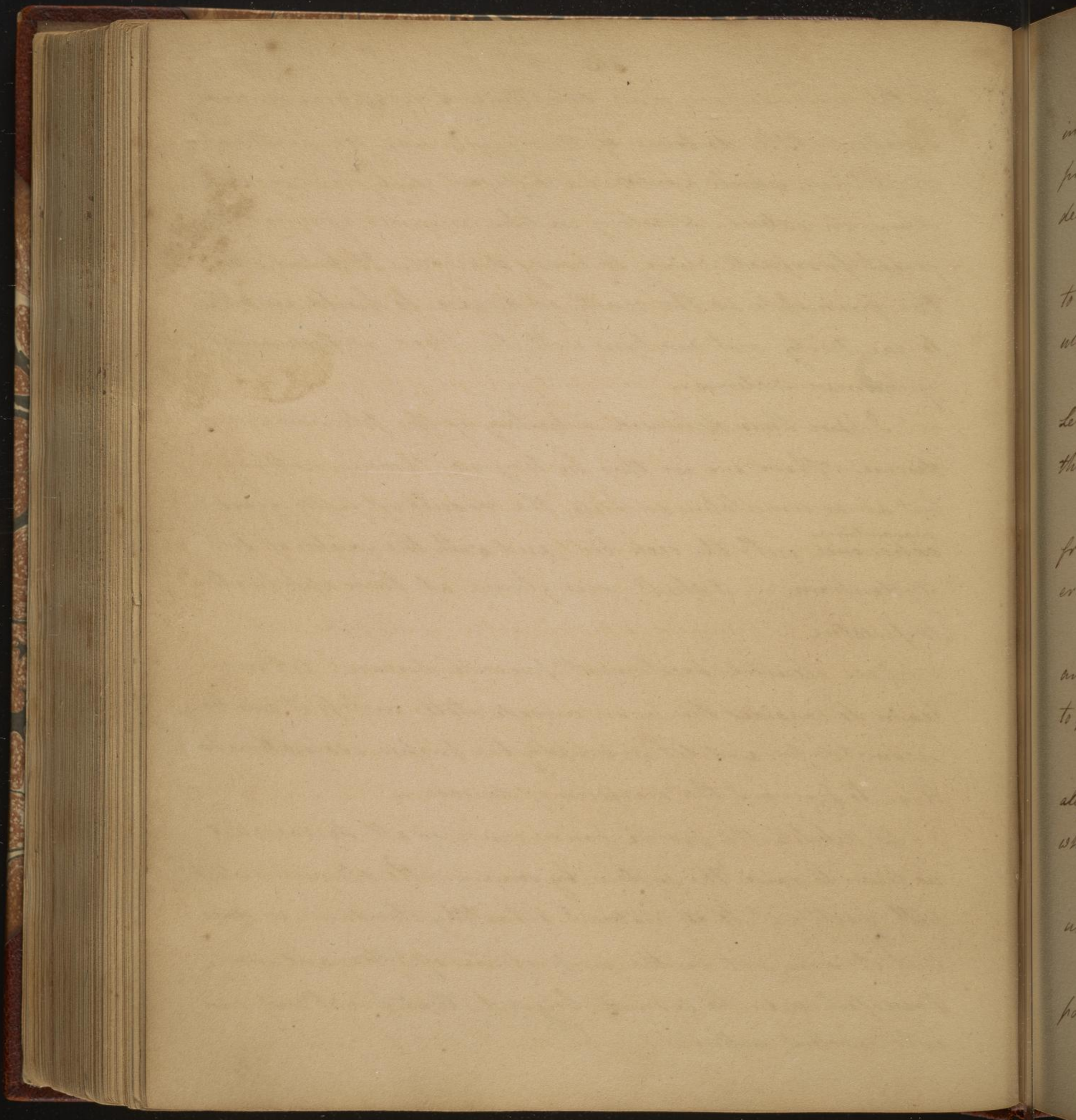


in the same disease, and sometimes they appear in combination. The doctrine of Nosology is like the heathen Mythology, which ascribes a different deity to every substance in nature. Nosology in like manner assigns a different proximate cause to every disease. It belongs to the principle of the unity of disease to build an altar to one Deity, not smoking with the blood of thousands of human victims.

I have thus delivered a history of the phenomena of disease. There are in this history no Theories, nothing but an accumulation of facts; the result of fifty years ^{acquaintance} ~~experience~~ with the sick bed, and with the works of Dr Sydenham. I shall now glance at their application to practice.

Does elevated excitement precede disease? Let us learn to consider this as an unsafe state unless it can be accounted for; and let us employ the proper evacuations in time to prevent the accession of disease.

Is debility the predisposing cause of all disease? Let us learn to raise the system by some gentle stimulus which will restore it to its natural & healthy standard, in order that it may not by the impressions of other and more powerful ones be carried beyond that point and run into morbid action.



Is the system more exposed at midnight, in the morning & in the evening? Let us learn to be particularly careful to protect ourselves at those periods from the influence of debilitating causes.

Is depression a link in the chain of disease? Let us learn to remove it in time by abstracting all superabundant stimuli.

Is accumulation of excitability necessary to produce disease? Let us prescribe gentle stimuli as a means of preventing this accumulation.

Is excitability suddenly evolved by rest after debility from fatigue? Let us learn to cease gradually from exercise and labour.

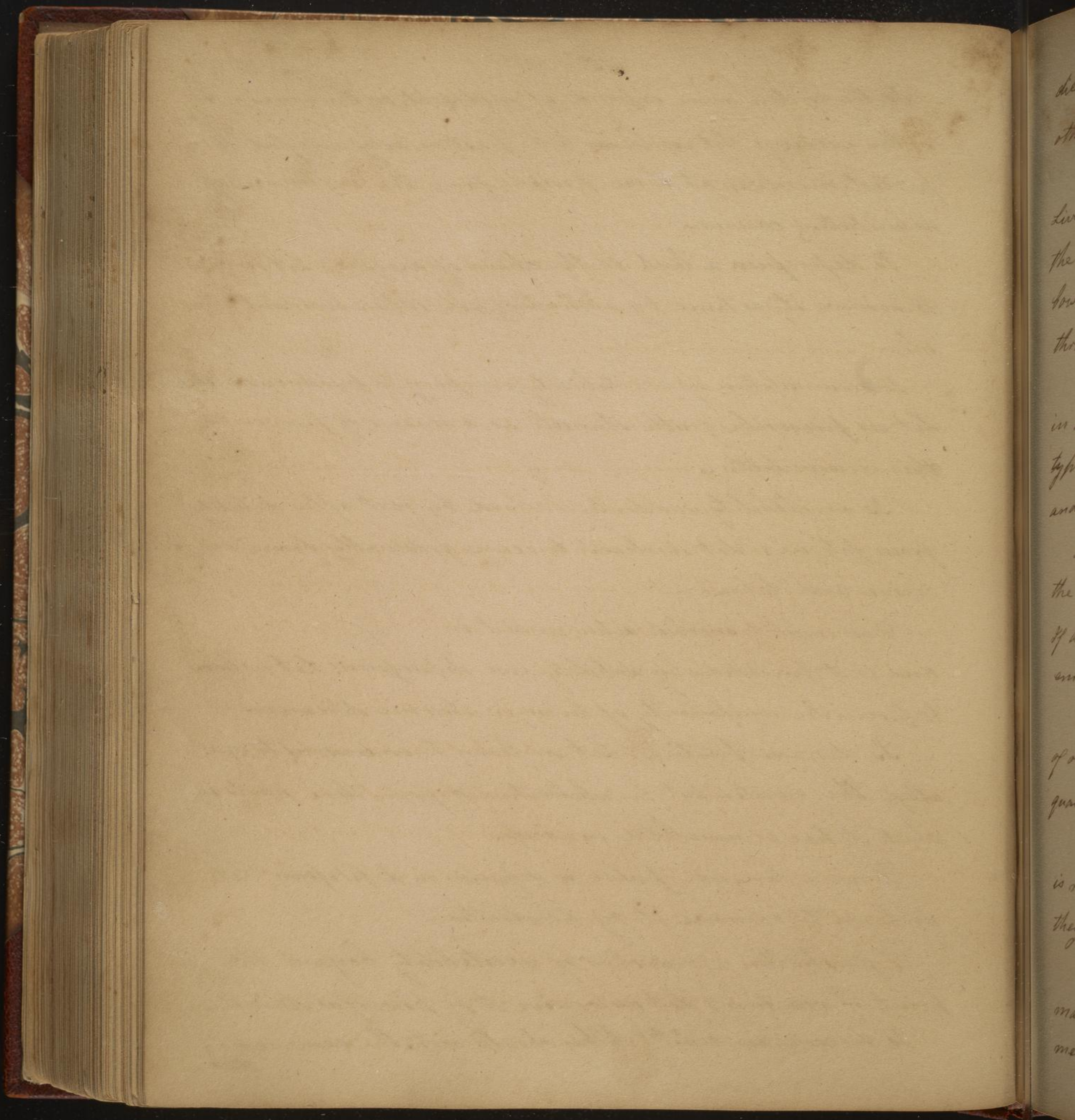
Does morbid morbid action consist in excessive action and is it preceded by debility and depression? Let us learn to prescribe uniformity of living in chronic diseases.

Is disease partial? Let us learn to endeavour to equalize the excitement by abstracting it from those parts in which it has accumulated in excess.

Does a languid pulse &c depend on depression? Let us learn to remove it by bloodletting.

Is prostration a reduction of excitability beyond the point of reaction? Let us revive it by powerful stimuli.

Is disease an unit? Why should not the same remedy
die



die

r

live

the

low

tho

in

typ

and

the

if a

em

of o

gun

is a

the

o

ma

me

dies which remove it from one part remove it from every other part.

Do we prevent suppuration & disorganization of the ~~parts~~ Liver in Hepatitis by means of a salivation? Why should not the same remedy abstract inflammation from the stomach or bowels, brain or limbs, by exciting a vicarious office in the throat and salivary glands.

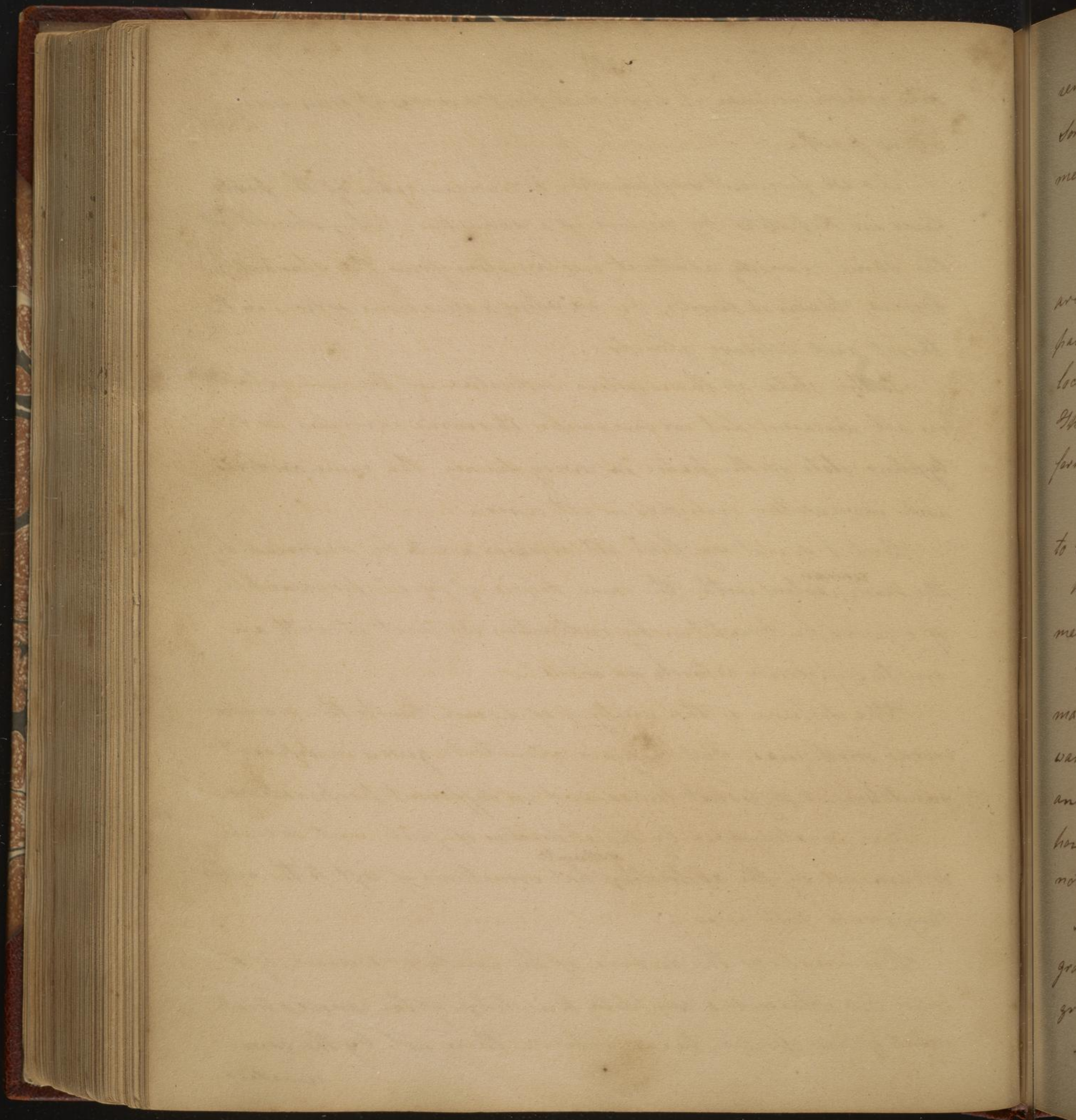
Is the state of the system indicative of the same state in all diseases? Let us prescribe the same remedies for the typhus state of the pulse in every disease, the same cordials and invigorating remedies in all cases.

But I do not say that all diseases are to be removed by the same ^{remedies}, acting with the same degree of force; for example, if a fever be brought on by indigestion we treat it with an emetic, if from catarrh we bleed.

The doctrine of the unity of disease limits the number of our medicines, but they are often to be given in different quantities, at different times, and in different preparations.

Fire is extinguished by the abstraction of fuel, and disease is removed by the abstraction ^{of stimulus}; but sometimes if left to themselves they would both cease.

By means of the doctrine of the unity of Disease, if a man has obtained a complete knowledge of the causes & treatment of one disease, he can relieve them all by the same
remedies



remedies varied in force and the mode of administering them. Some difference is however frequently to be made in the treatment of disease, according to its remote & exciting causes.

Of the Effects of Disease.

I now proceed to inquire into the effects of disease. They are 1st Inflammation. It is produced by the passage of red particles of blood into serous vessels, constituting an error loci; the vessels are distended & the inflamed part swells. These serous vessels are sometimes ruptured and pour forth their blood as in Petechiae, Bloody Urine &c.

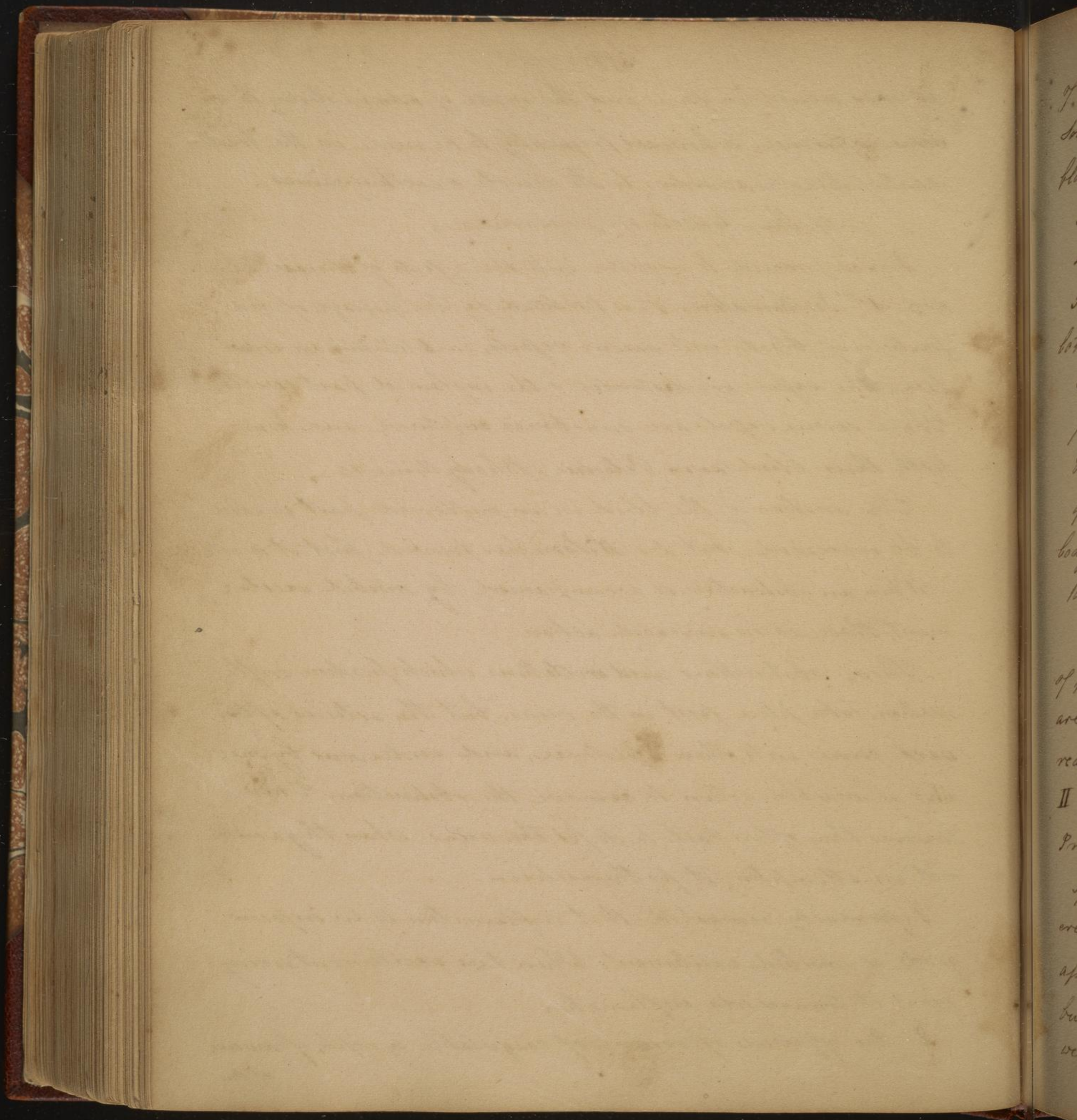
The motion of the blood in an inflamed part is said to be increased, but Dr Wilson has proved that it is not.

When an obstruction is accompanied by morbid excitement, there is no increased action.

Those obstructions and irritations which produce inflammation, take place first in the veins, but the arteries afterwards come into their assistance, and endeavour by means of morbid action to remove the obstruction. This however they often fail to do for the veins, when they would not in attempting it for themselves.

I formerly remarked that inflammation is an inferior grade of morbid excitement. When this excitement is very great it transcends inflammation.

2 An effusion of serum, of coagulable lymph, of mucus,
of pus



of Pus, or of all the parts of the blood producing hemorrhage. Sometimes other matters are found (but more rarely) as the black matter in the stomach

3 Secretions or excretions, as in the kidneys, bowels &c.

4 Schirrh and indurated tumours.

5 Unnatural sensibility or irritability, or a deficiency of both producing inertia

6 Eruptions on the skin.

7 The change of parts into bone.

8 Cancers.

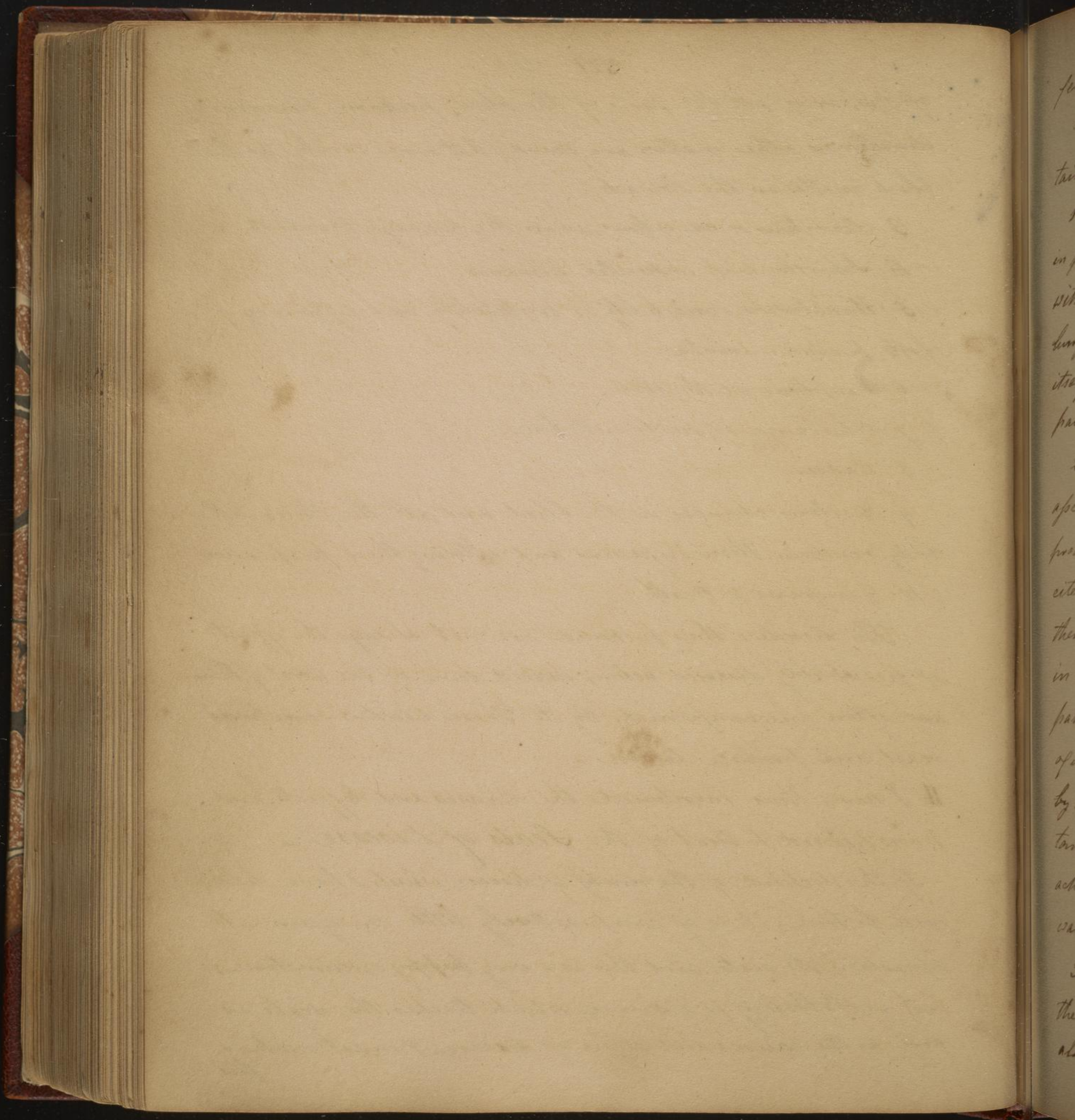
9 Certain changes in the blood and all the fluids in the body, rendering them injurious and altering their properties.

10 Gangrene & Death

The disorders thus produced are not always the effect of perceptibly diseased action; indeed some of the worst of them are often unaccompanied by it. These disorders sometimes react and produce disease.

II I have thus mentioned the Causes and Effects, and now proceed to treat of the Seats of Disease.

If the doctrine of the unity of disease which I have delivered be true, it is of comparatively little consequence to ascertain its seats, and this is a very happy circumstance; but as Pathology is a science which teaches the seats as well as the causes and signs of disease, I must make a few



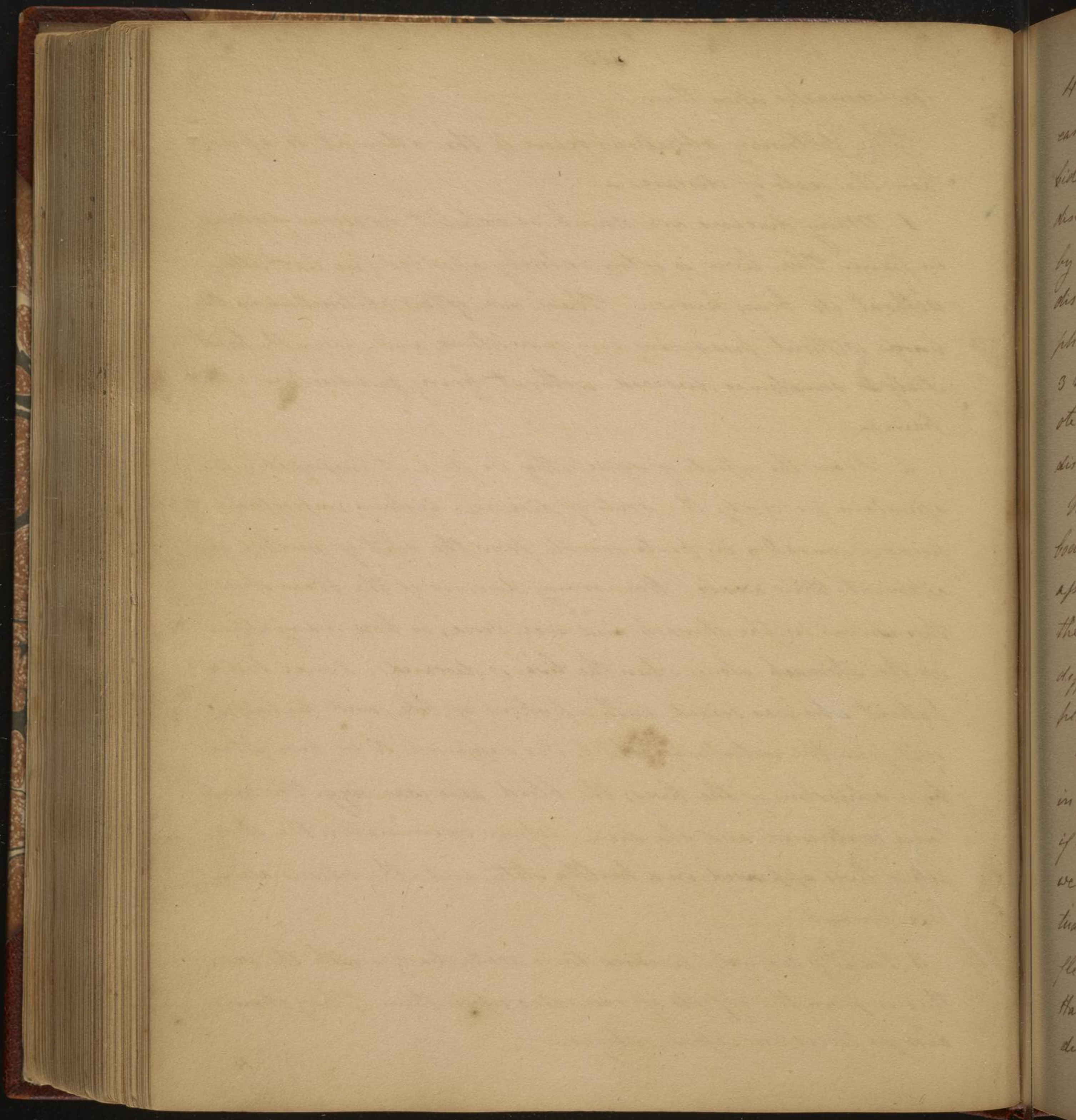
few remarks upon them.

The following objections occur to the attempt to ascertain the seats of disease -

1 Many diseases are dumb, or exhibit no signs of disease in pain. The liver is often intirely absorbed in Calcutta without its being known. There are often obstructions in the lungs without producing any symptoms, and even the heart itself is sometimes diseased without being productive of pain -

2 From the effects of sympathy we find it impossible to ascertain precisely the seats of disease. Certain impressions produce sensation in parts remote from the seat of morbid excitement. ~~This occurs~~ How many diseases of the brain shew themselves in the stomach and vice versa; or how many appear in the stomach alone when the liver is diseased. I once had a patient who was seized with a puking of bile and discharge of it from the intestines, which was supposed to be brought on by a schirrhous of the liver: the blood also was sizy. The symptoms continued and she died. Upon examination the stomach & liver appeared in a healthy state, and the uterus alone was diseased.

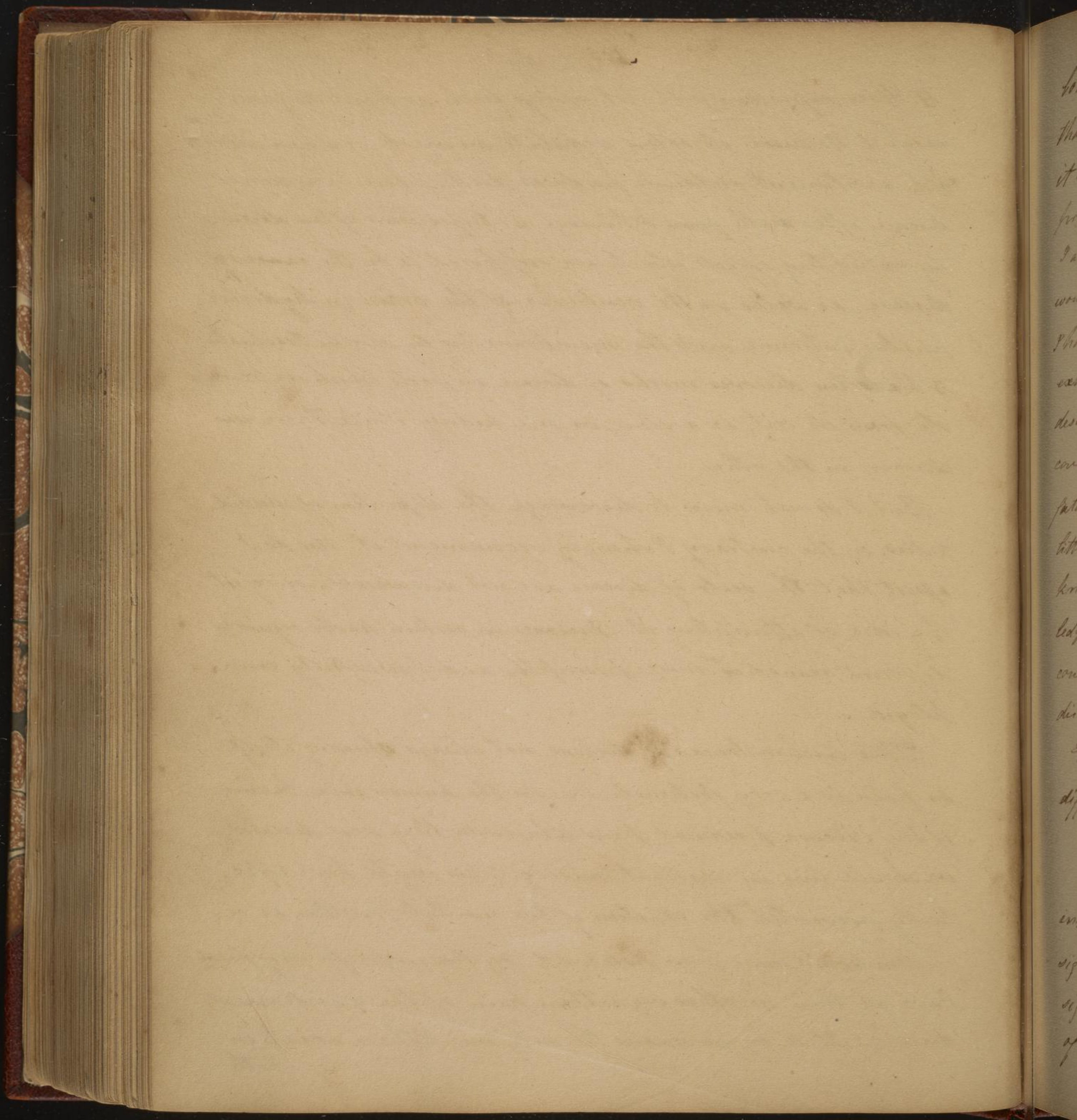
3 In all general diseases their seats changes with the weather, or from the effects of remedies upon them. They change also in their successive stages -



4 Even dissections will not always teach us the seats of disease. 1 Because it often exhibits no mark, as when morbid excitement suddenly produces death. There is no sign of disease after death from lightning. 2 Dissections often deceive by exhibiting effects which are supposed to be the causes of disease, as water in the ventricles of the brain in hydrocephalus internus, and the membrane in Cynanche trachealis. 3 We often discover marks of disease in parts which are remote from its seat, as a stone in one kidney while there was disease in the other.

But I do not mean to discourage the dissection of morbid bodies, on the contrary I strongly recommend it. Nor do I assert that the seats of disease are not discoverable, or reject the idea of attempting it. Disease in certain parts requires different remedies, ^{or} more promptly and powerfully employed.

This circumstance of disease not always shewing itself in pain is a very fortunate one for the human race, because if the viscera produced pain whenever they were diseased, we should live in constant misery. This would have effectually prevented ^{any} the exertion of the mental faculties, as reflection would have been precluded by the impressions of pain. Have we then no other sign than pain of the existence of disease? It is by no means the only one. There exists in both



both our arms a more certain symptom of internal disease than in any other part of the body; I mean the Pulse. When it refuses to give us information its place is supplied by pain, preternatural heat, uneasiness, the state of the tongue, excretions &c.

I am however convinced, that if accurately attended to the pulse would always indicate the presence even of these dumb diseases. I have called it the *Barometer* or *Dial plate* of the system. It exhibits its signs of disease without pain, for the arteries are happily destitute of much sensibility. By the assistance of it I have discovered a disease & prevented death which threatened to terminate fatally and prevented death, when the patient complained of very little disease. In such cases I have cured the disease without knowing its seat, by means of depletion. But a uniform knowledge of the seats of diseases would have been useless unless we could determine the particular part of each viscus which was diseased.

The whole arterial system is as much connected as the different parts of a single viscus.

III Of the Signs of Disease.

These are divided, first into proper & common, & second into primary and secondary. Heat & thirst are the common signs of a fever. Pain in the side is a proper & primary sign of a pleurisy. Difficult respiration which is the effect of disease is a secondary sign.

Symptoms

* A Pathognomonic sign of disease is one that is more peculiar & certain than the Diagnostic, thus the pulse becoming slow after being frequent is a pathognomonic symptom of dropsy of the brain, or that which most certainly denotes it.

Symptoms have been called Diagnostic and Pathognomonic; but they are both uncertain.*

Prognosis is a prediction of the termination of a disease.

Crisis is its termination in another disease or in health.

I shall now make a few remarks on the symptoms of disease.

1 The sympathies and associations between different parts of the body are different in disease from what they are in health.

2 They differ in different people.

3 In the same person at different times.

4 The signs of the same disease differ in different climates.

5 They are in many instances a part of the same disease.

6 They often constitute the disease itself.

7 They differ in the same disease as they relate to its forming stage.

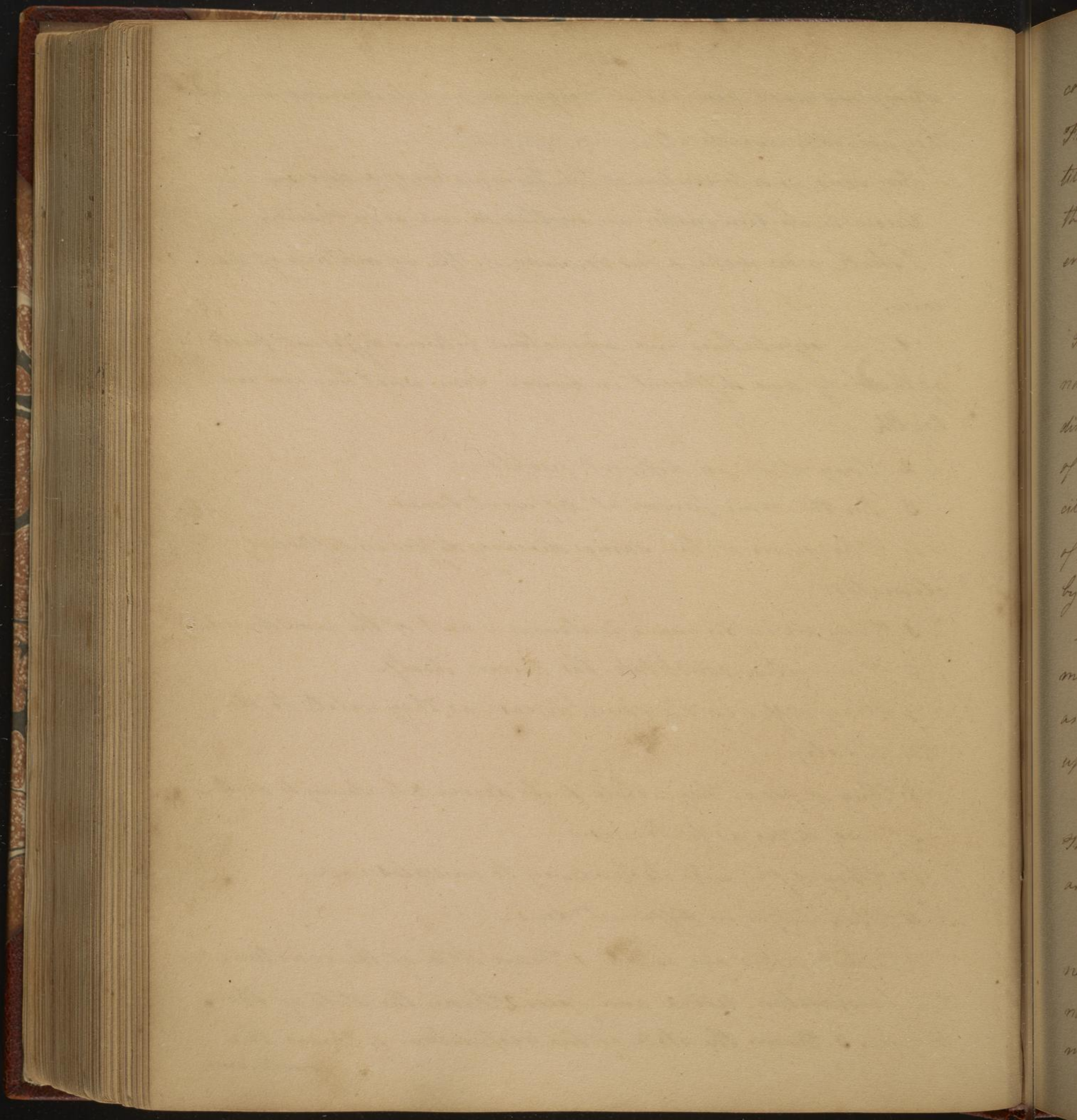
8 They differ as they relate to its degree & tendency to death.

9 They differ as to its crisis.

10 They differ as to its tendency to convalescence.

11 They differ on different days.

These signs are taken, 1 From state of the excretions, the perspiration, urine, and feces. 2 From the state of the tongue. 3 From the state of the respiration. 4 From the countenance.



countenance. 5 From the position of the body in bed. 6 From the state of the muscles. 7 From the state of the appetite. 8 From the state of the mental faculties. 9 From the state of the body as to heat or cold. 10 From the existence or nonexistence of pain and the nature of it.

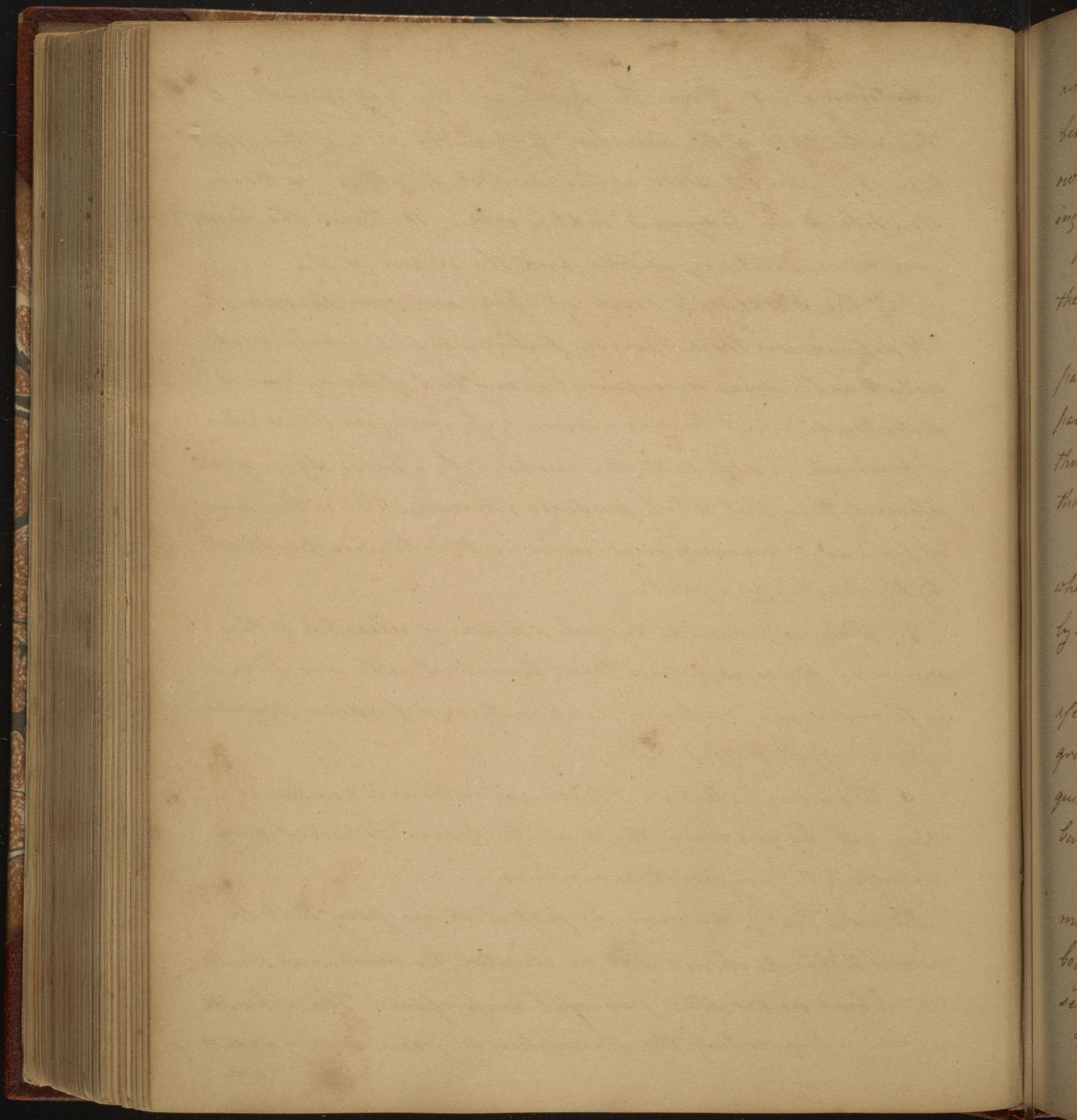
Of the Proximate cause of Pain, and remarks upon it.

It depends on three causes. 1 Stimuli of a mechanical nature as produces derangement of any part of the system, or distention of a part to such a degree as to endanger the solution of continuity in such part. It is produced by a higher degree of excitement than that which produces pleasure. This is the cause of pain as it commonly occurs in fevers. It is likewise produced by the luxation of a joint.

2. Pain is produced by such a degree of relaxation of the muscular fibres as disposes them to contract with such force as to endanger a solution of continuity, and produces pressure upon sentient parts.

3 Chemical Stimuli. These are internal & external. They act by producing the same tendency. Different parts are affected by different acrimonies.

In order that pain may be felt it is necessary that the nerves & mind should not be elevated too much, and should not labour under other powerful impressions. The action of mind in preventing the perception of pain is very evident, and



and many instances might be adduced to prove it. Officers after being wounded in battle submit with cheerfulness to operations, owing to the elevation of the ^{mind} system by the stimuli of surrounding objects and impressions.

A deficiency of energy in the brain and nerves produces the same effect.

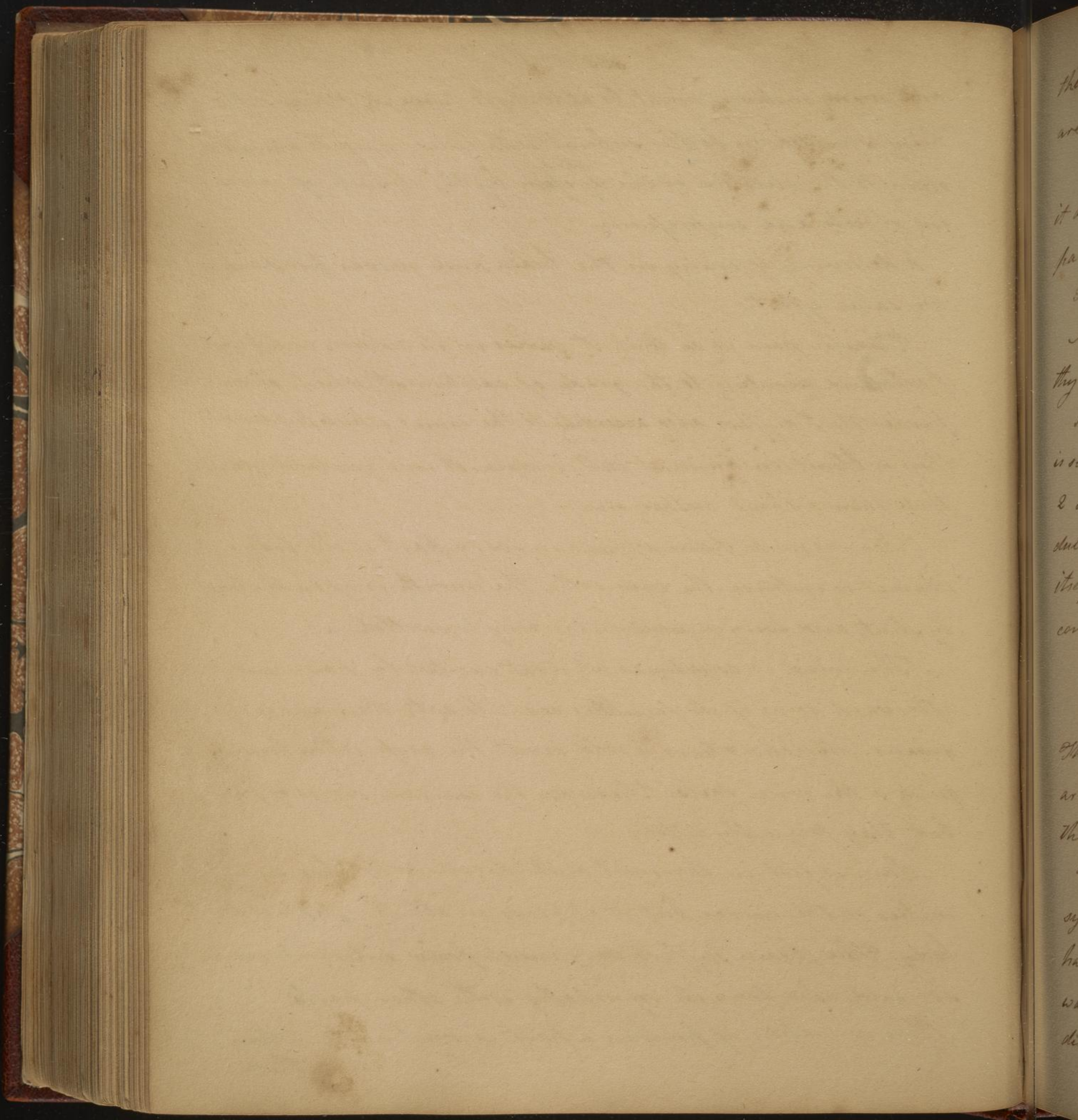
Though pain is an unit, it varies in its nature in different parts and according to the grade of excitement which accompanies it. It differs also according to the causes which produce it; thus a blunt instrument will induce it in a greater degree than a sharp cutting one.

The signs of pain appear in every part of the body. when it is intense the eyes roll, the mouth is open or closely shut, and every muscle in the body is swelled.

The mind is sometimes at first excited by pain, and afterward some of its faculties cease to act; then appear groans, shrieks & tears, a cold sweat, the respiration becomes quick & the voice fails. These are the common signs of pain, but they frequently differ.

Pain is felt in the most acute degree in the two extremities of the nerves, but it appears in all the parts of the body. The brain suffers very much from internal causes and also from its sympathy with other parts.

The sensation of pain in a part is most acute when there



there are the greatest number of nerves in it, and when they are minutely subdivided.

Disorder coming on gradually produces less pain than when it occurs suddenly. Lesions suddenly produced excite great pain.

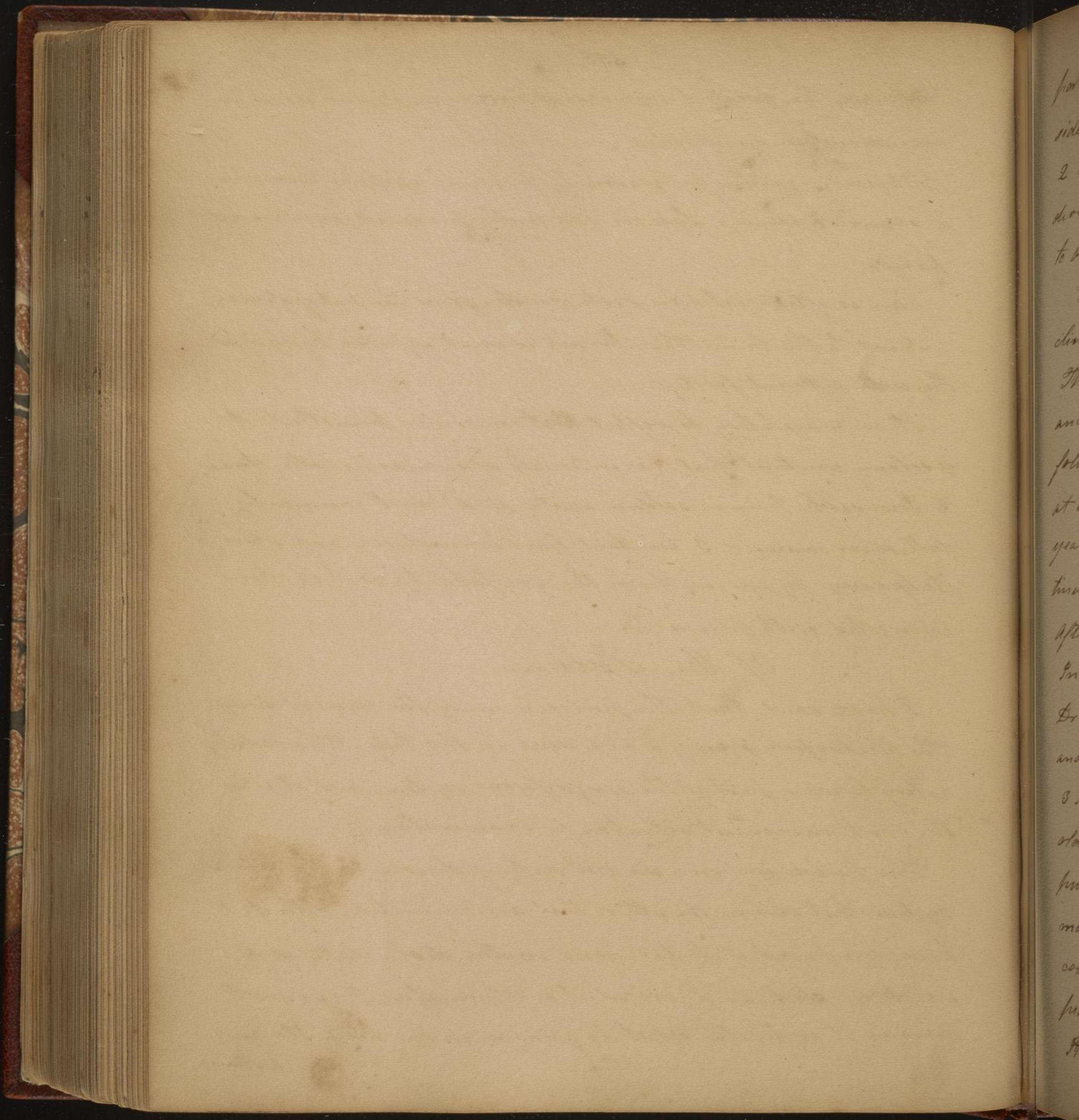
Pain is often seated in parts remote from the seat of disorder. Next to the brain the stomach is most affected by sympathy with different parts.

It is consolatory to reflect ~~that~~ concerning pains that it is seldom constant but has intervals of ease, as in colic, stone. 2 Incurable pain is seldom acute, and most commonly dull, as in cancer. 3 Constant pain is unnatural and wears itself away, by wearing down the excitability, or it is even connected with pleasure.

Of the Pulse.

I have said that the pulse is one of the signs of disease. The bloodvessels occupy a high rank in the body. The radial artery forms a part of the sanguiferous system, and it is in the most convenient situation for examination.

The pulse informs us not only of disease in the arterial system, but also in the others that are connected with it. I have compared it to the hand in the dial plate of a watch or clock, and called it a Nosometer. For in most diseases it indicates what is going on in the body. Its im-
portance



portance was first pointed out by Galen. I shall consider it in three points of view, 1st as it appears in health. 2^d In a morbid state, and 3^d I shall give you some directions respecting the manner in which that state is to be discovered.

The natural frequency of the pulse in adults in moderate climates is from 60 to 80. Its medium frequency is about 66.

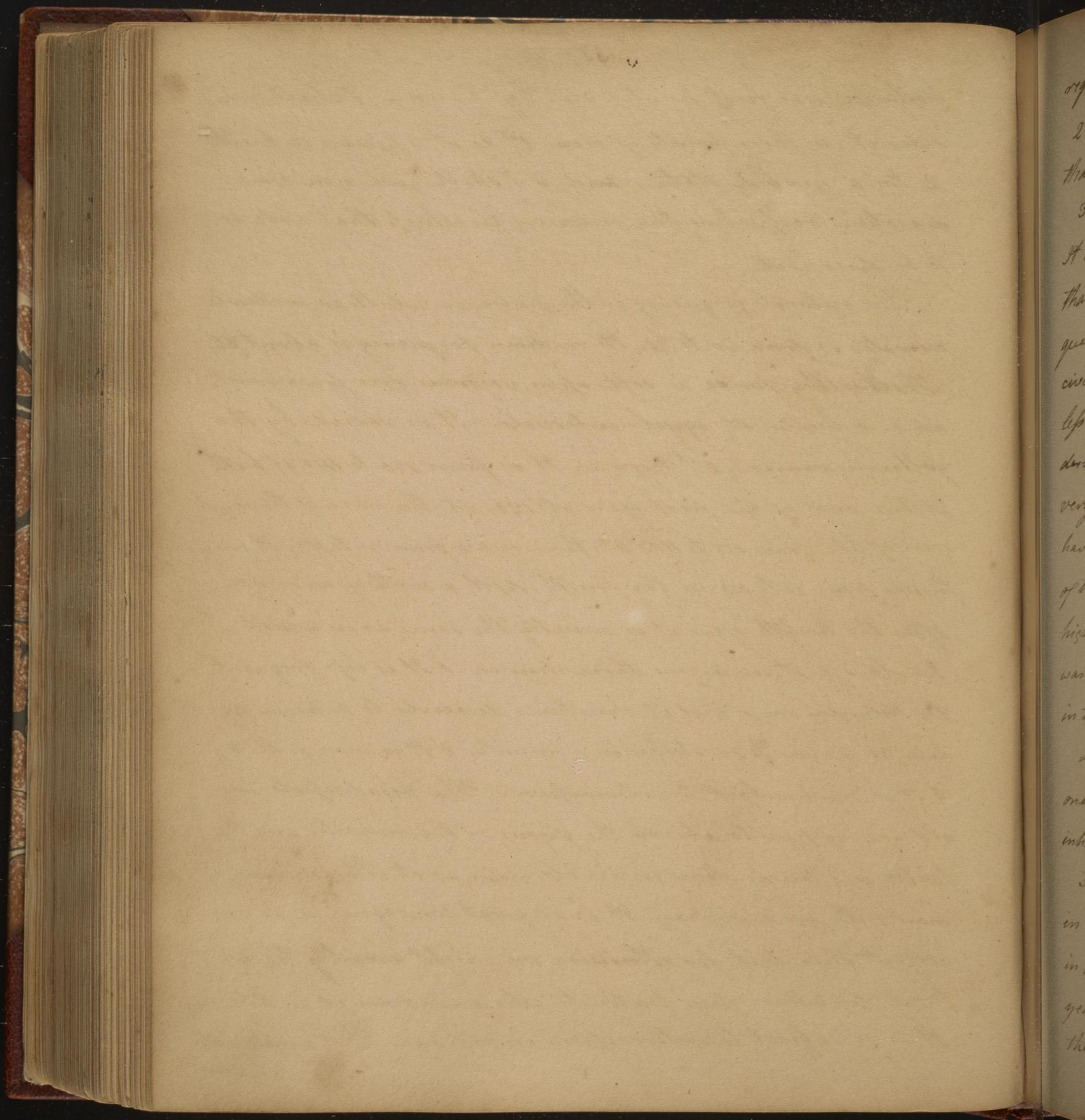
The healthy pulse is soft, open, vigorous, free from resistance & beating at equal intervals. It is varied by the following causes. 1st By age. It is from 180 to 140 at birth, at the end of the first year at 120, at the close of the second year of life from 108 to 110. At three years from 90 to 108; it continues from 80 to 108 in the fourth, fifth & sixth years of life.

After the twelfth year it is usually the same as in adults.

In old age it undergoes three changes. 1st It is less frequent, Dr Heberden says that it sometimes descends to between 42 and 30 or even to 26 strokes in a minute. 2^d It is more full, &

3^d It is more subject to intermissions. The bloodvessels in old age appear to absorb the vigour of the muscles, and the pulse is often as strong in an old man as it is in a young man with an apoplexy. It is of great consequence to recollect this fact, for otherwise we might employ too copious depletion upon patients who are advanced in life.

It is so subject to intermissions in old age that a perfectly regular



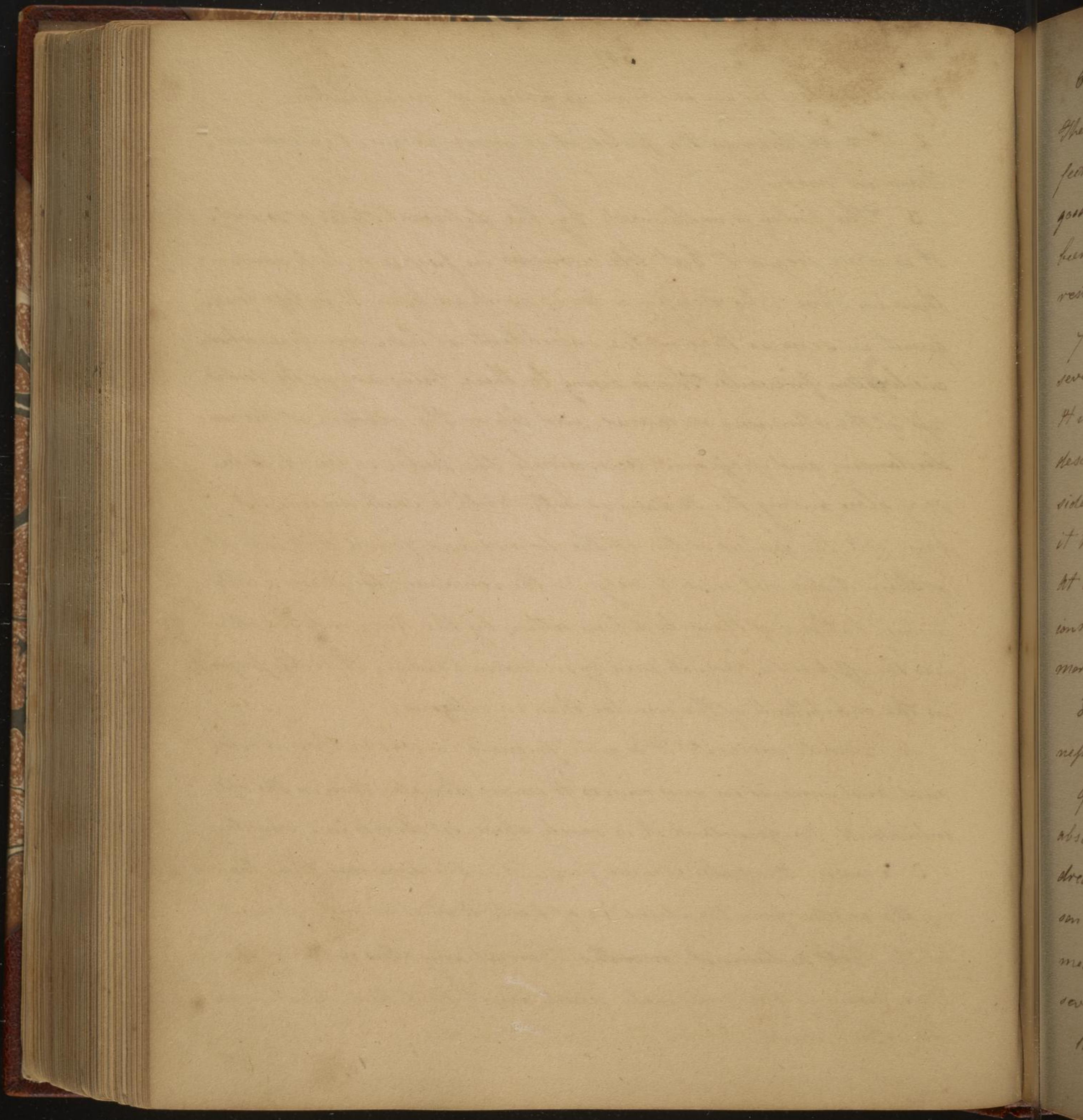
regular pulse in an old man is a sign of indisposition.

2 Sex influences the pulse, it is more frequent in women than in men.

3 The pulse is influenced by the different states of society. It is more frequent but less vigorous in people of high rank, than in those who occupy a lower rank in life. It is less frequent in savages than in the inhabitants of those countries where civilization prevails. This is owing to there being among the former less of the stimulus of labour, and less of the exertion of the understanding and passions. Accordingly the pulse is found to be very slow among the Indians of both North & South America. I have felt the pulses of ten of the former and found that in eight of them it did not reach to sixty. In the remaining two it was a little higher, but one of them had been sitting by the fire, and the other was the offspring a French man by an Indian woman. It is less frequent in the inhabitants of the country than in citizens.

4 Climate varies it; it is more frequent in warm than in cold ones, and more so in new comers to warm climates than in the old inhabitants. In Greenland it is rarely above 40 strokes in a minute.

5 Season. The pulse is more frequent in the summer than in the winter, from the stimulus of heat. But it is more frequent in the first autumnal months than at any other season of the year, owing to the miasmata which are at that time floating in the atmosphere.



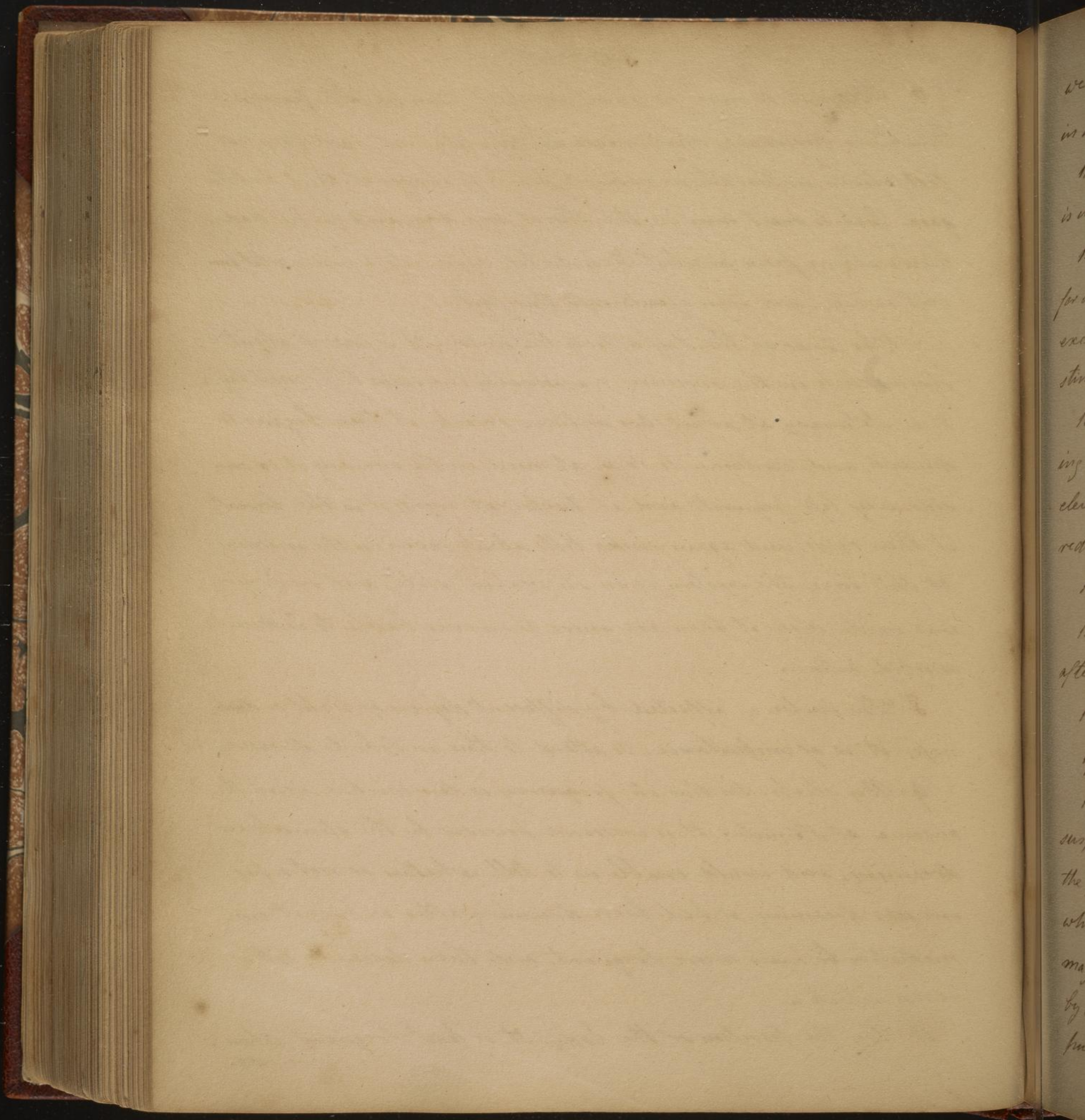
6 Size. It is more frequent in short than in tall persons. There is a remarkably short negro in this city, not more than four feet eleven inches, whose natural pulse is always at 80. I had the good luck to meet him in the street one day, and as he had been walking from market I conducted him into a house & let him rest awhile, and then ascertained this fact.

7 The time of the day affects the pulse. It is lowest about seven o'clock in the morning & gradually increases till mid-day. It is stationary at about two or three o'clock; it then begins to descend, and continues to do so, at nine in the evening it is considerably less frequent, and at twelve at night it is the lowest; it then rises, and again sinks till about seven in the morning. At this time the system is in its weakest state, and impressions made upon it then are more than ever liable to induce morbid action.

8 The pulse is affected by different degrees of light or darkness; it is of importance to attend to this in febrile diseases.

9 By sleep. In this its frequency is diminished from the absence of stimulus. It is increased however by the stimulus of dreaming, and would enable us to tell whether or not a person was dreaming, or had been dreaming. After waking it immediately becomes more frequent, and then descends till seven o'clock.

10 By the position of the body. It is least frequent when we



we
in
is
for
exc
stin
ing
ele
red
after
sus
the
wh
ma
by
for

we lie on our backs, more so when we sit up and still more in an erect position. It is important to remember this.

11 The position of the arm. It is less frequent when the arm is uncovered, or when it is pressed on by the body.

12 It is rendered more frequent by food and drink. It is reduced for some time by fasting; but afterward debility is induced and excitability is accumulated, which is acted on by the common stimuli of life, and the pulse is increased.

13 It is increased by certain exercises of the understanding and of the passions, decreased by others. Anger sometimes elevates it to 164 strokes in a minute, while grief sometimes reduces it to 60. It is likewise diminished by fear.

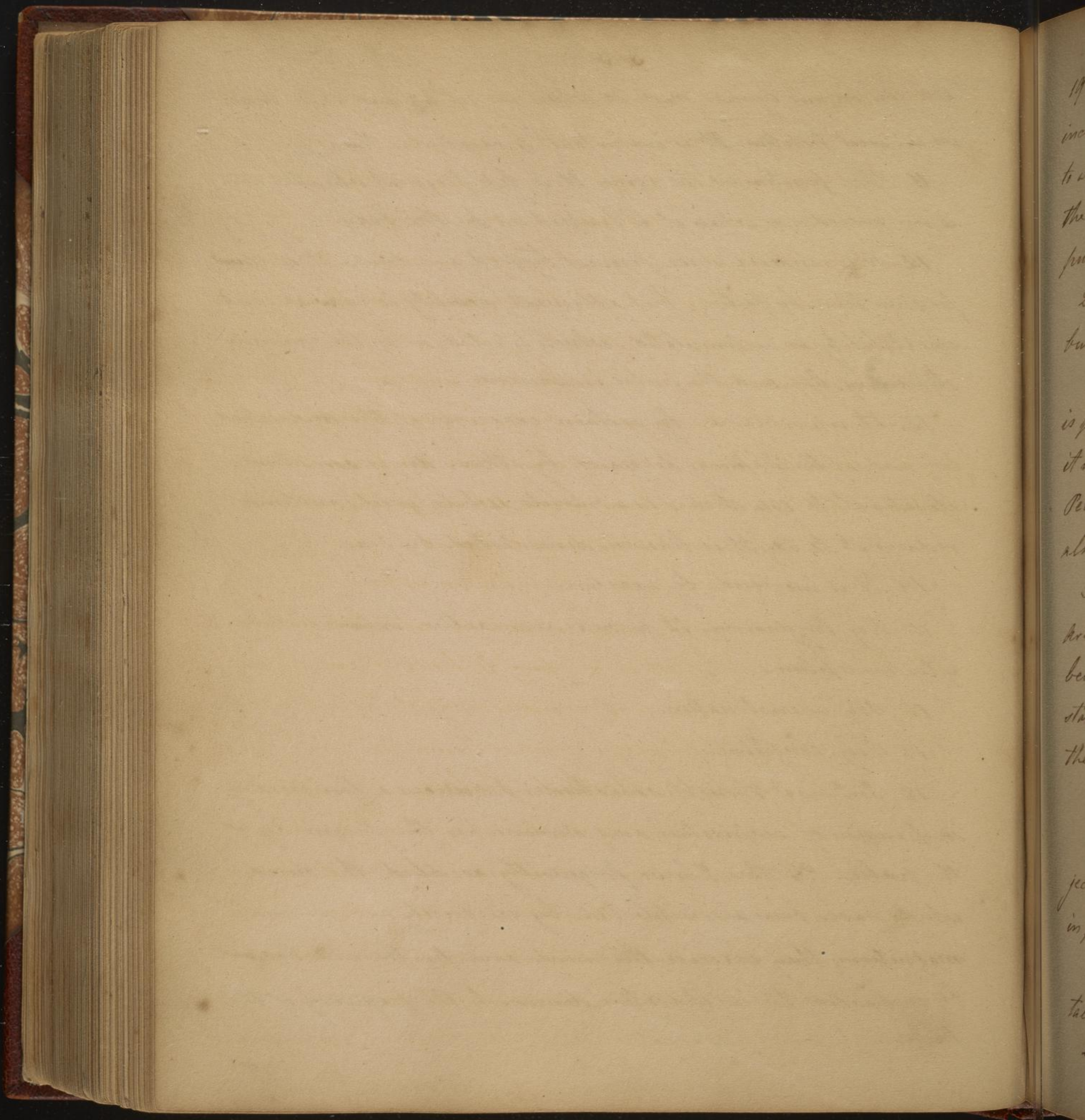
14 It is increased by exercise.

15 By pregnancy. It becomes more active immediately after conception.

16 By menstruation.

17 By coughing.

18 Intense thought sometimes produces a temporary suspension of respiration and diminishes the frequency of the pulse. To this I have frequently ascribed the cures which have been accomplished by electricity and animal magnetism; they exercise the mind and fix the attention, and by suspending the respiration diminish the frequency of the pulse.



19 Certain remedies as Opium, Mercury, Bark and Blisters increase the pulse: the last more or less according to the part to which they are applied. It is very necessary to distinguish the Opium, Bark & Mercurial pulse from the morbid pulse of fever.

20 Sudden fear diminishes the frequency of the pulse, but this effect is transitory.

In some people in good health, from idiosyncrasy, the pulse is preternaturally slow or frequent; I once knew a Lady in whom it was naturally at 40, but in a fever often rose to 60. In Judge Peters of this city it is seldom below 100 in health, and this is also the case with a clergyman in England.

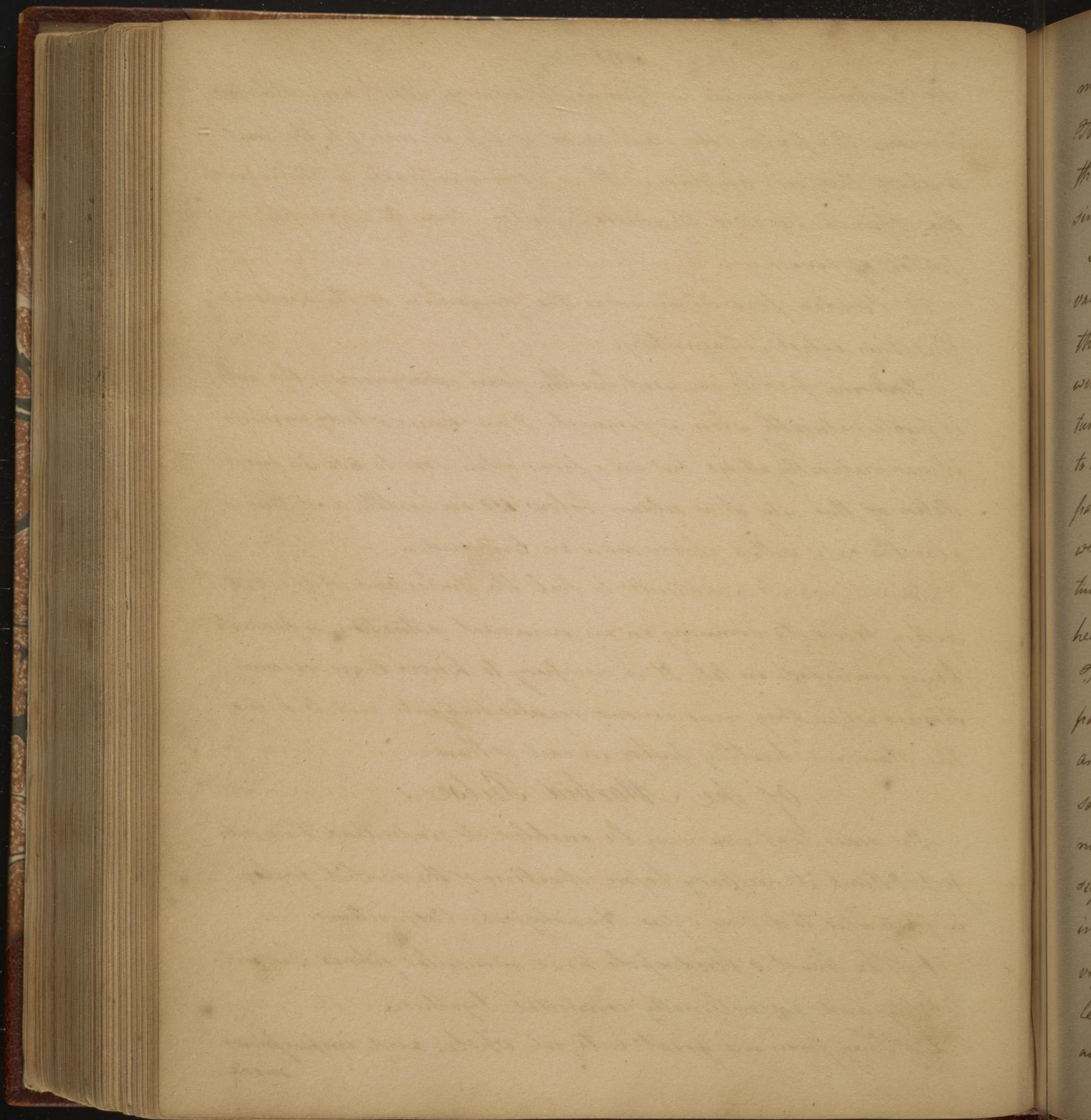
Sometimes it is difficult to feel the pulsations of the Radial Artery from its running in an unusual situation, or from its being imbedded in fat. It is necessary to know these circumstances when they occur in our regular patients; and to know the standard healthy pulse in each of them.

Of the Morbid Pulse.

In order that you may be enabled to understand this subject, I think it necessary before speaking of the morbid pulse in particular, to deliver a few Physiological Propositions.

1 The heart & bloodvessels have muscular fibres and irritability; and are internally connected together.

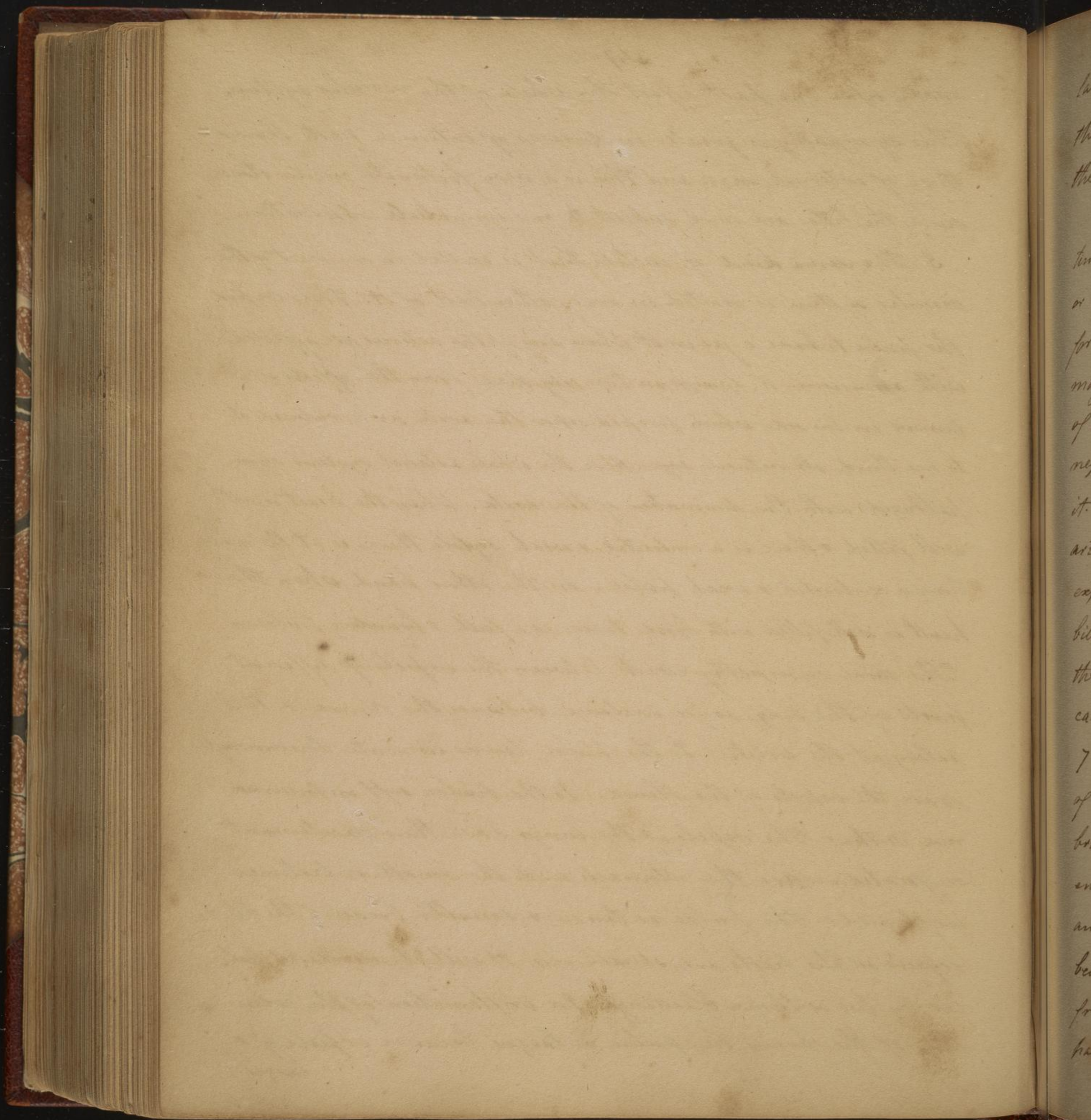
2 They form one great integral whole; and impressions made



made upon one part affect the whole of the vascular system. This sympathy is greater in diseases of internal parts than in those of external ones: and this is a very fortunate circumstance since the latter are more subject to our immediate observation.

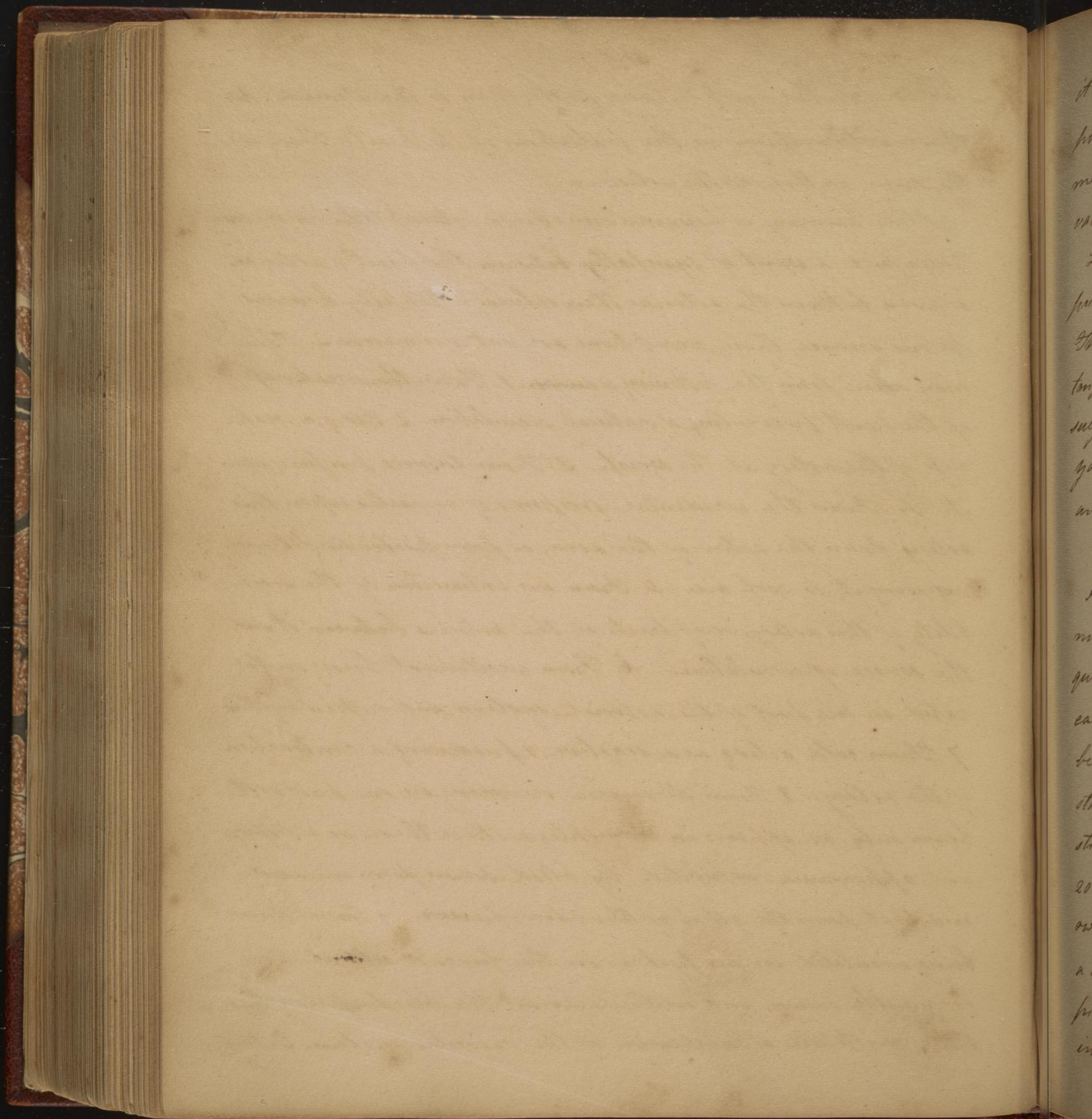
3. The same kind of motion that is excited in one part of the vascular system is excited in every other part of it. Thus we find the pulse to have a jar in it when any of the arteries are affected with aneurism. A Lawyer in this city died from the effects of a tumour in his side which pressed upon the aorta and reduced it to one third its natural size. Here the whole arterial system sympathized with this diminution of the aorta. When the heart is not well filled & there is a contracted & weak systole there is at the same time a contracted & weak pulse. On the other hand when the heart is well filled with blood there is a full & bounding pulse.

The same sympathy exists between the vessels of different parts of the body; as for instance between the Pleura & the artery at the wrist. Is the pulse tense in acute Pneumony? so are the vessels of the Pleura. Is the pulse soft in Pneumonia Notha? The vessels of the lungs have their excitement suffocated. Are the stomach and the small intestines inflamed? The pulse is tense & small because the blood-vessels of the parts are small also. It will be rendered fuller by two or three bleedings. In inflammation of the colon and of the brain the pulse is larger, because vessels of a
larger



larger size are sent to those parts than to the stomach. Are there intermissions in the pulsations of the heart? There are the same in those of the arteries -

This harmony is however sometimes interrupted, for we sometimes find a want of sympathy between the heart & arteries, or even between the arteries themselves. Happily however for our science these exceptions are not numerous - They may arise from the following causes. 1 From the weakness of the heart preventing a natural circulation. 2 From a weakness of the artery at the wrist. 3 From tumors pressing upon it. 4 From the accidental pressure of muscles upon this artery from the action of the arm, or from protruding it and exposing it to cool air. 5 From an exhaustion of the irritability of this artery, or of parts of the arteries between it and the source of circulation. 6 From excitement being suffocated in one part of the arterial system and not in another. 7 From cold acting as a sedative & producing a contraction of the artery. 8 From disease occurring in one part of the brain only as appears in Hemiplegia. Here there is a different appearance exhibited by blood drawn from one arm, and that from the other of the same person. 9 From disease being insulated in one part as in the lungs or uterus. This frequently occurs, and on this account the bloodvessels of these parts constitute a subdivision of the vascular system. To this
it

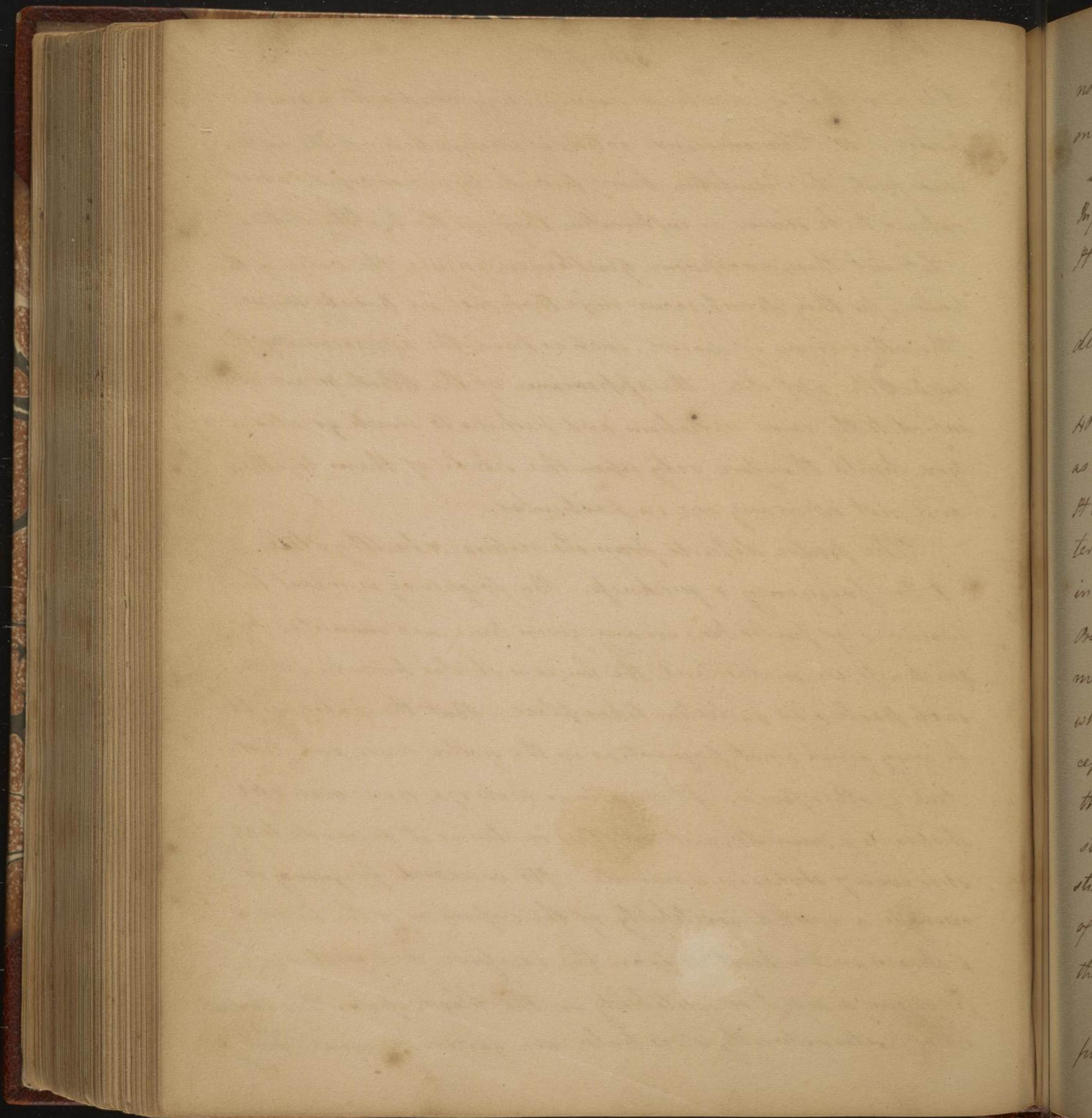


it is owing that we sometimes perceive sizy blood with a weak pulse. 10 The increased action is always behind the inflamed part; the circulation being proved by microscopical observations to be slower in inflammation than in the healthy state.

Let not these exceptions, Gentlemen, injure the value of the pulse, for they do not occur more than once in twenty times. The other signs of disease, such as pain, the appearance of the tongue, the appetite, the appearance of the blood &c. are all subject to the same variations and perhaps to much greater — you should therefore rely upon the whole of them together, and not upon any one in particular.

The pulse departs from its natural & healthy state.

1 In frequency & quickness. By frequency is meant the number of pulsations in any given time, as a minute; by quickness we understand the longer or shorter time in which each particular pulsation takes place. But the pulse might be very quick & not frequent, as in the yellow fever, and last stage of other fevers. It sometimes beats 170, 180 or even 240 strokes in a minute, and in other instances it descends to 38, 20 or even 7 strokes in a minute. Its increased frequency is owing to a morbid irritability of the vessels or of the heart, or a spasm in the heart; or from the excessive force of stimuli producing a defect of irritability in the bloodvessels. The strokes in a preternaturally slow pulse are generally equal but
not



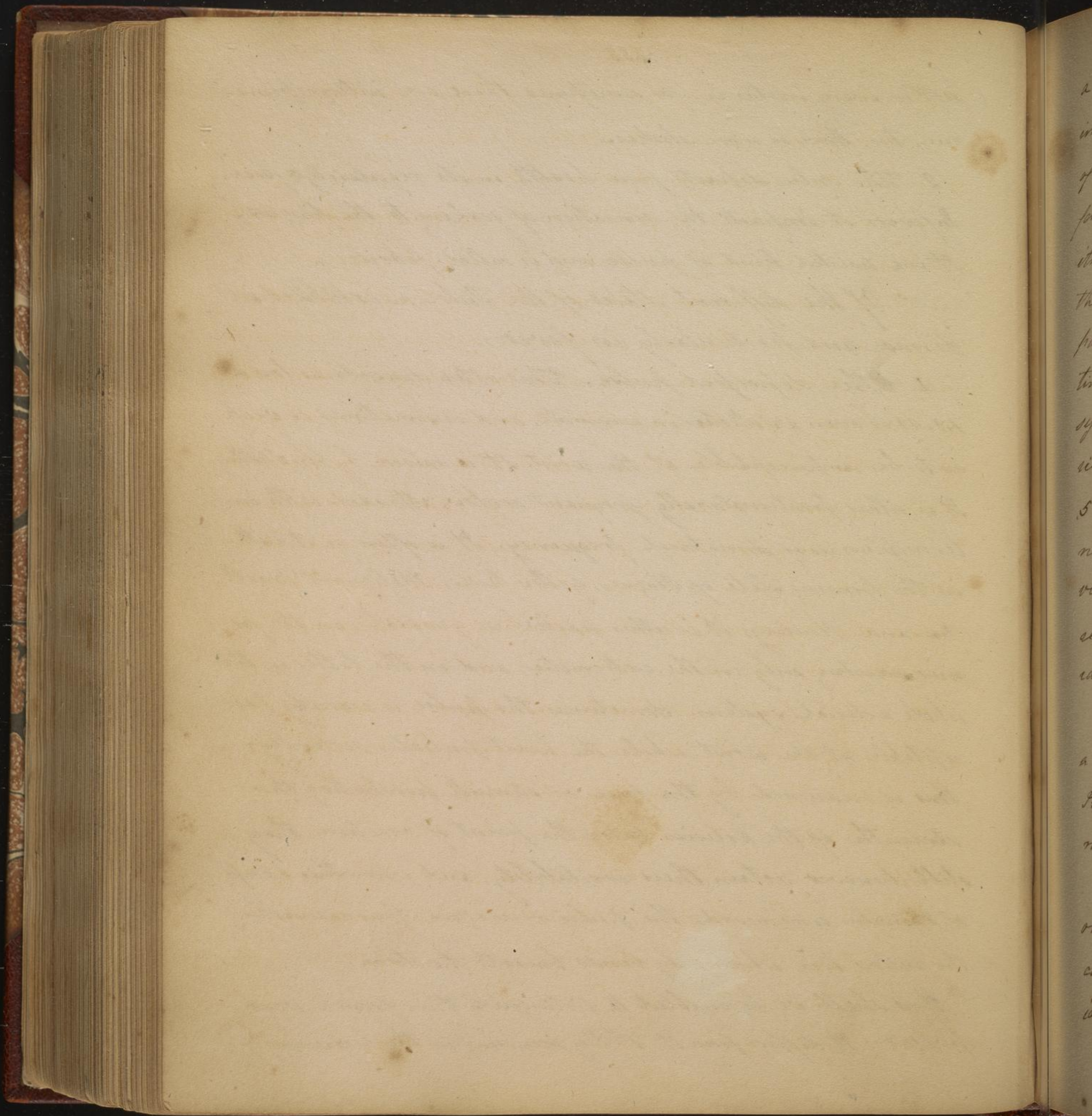
not in every instance, for sometimes there are intermissions of one, two, three or more strokes.

2 The pulse departs from health in its regularity & force. In fevers it imparts the sensation of jerking to the fingers. It is a twisted kind of pulse and is called febrile.

Of the different states of the Pulse as exhibited in disease and particularly in fever.

I The depressed pulse. This often descends as low as 40, 30 or even 28 strokes in a minute, and is sometimes so weak as to be imperceptible at the wrist. It is raised by bloodletting. It is either preternaturally frequent or slow, attended with intermissions or of its natural frequency. It is often met with in the forming state of Plague, yellow fever, Malignant small pox and Pleurisy; it is either partial or general, in the former existing only in the extremities, and in the latter in the whole arterial system. Sometimes the pulse is scarcely perceptible at the wrist while the heart pulsates violently; this is occasioned by the force of stimuli prostrating the strength of the arteries below the point of reaction; they still however retain their irritability, and when this excess of stimulus is removed the pulse rises again, thus resembling the willow tree which only bends beneath the storm.

How shall we be enabled to distinguish this from a weak pulse? It differs from it 1st By occurring in the beginning of a



a disease or in the paroxysm of one which is periodical. 2 By imparting to the fingers after feeling it a long time a feeble sense of tension. In order however to discover this it is necessary to feel it for a considerable time, frequently as long as ten minutes. 3 By its occurring in morbid affections of the stomach & bowels, or of the heart or brain more frequently than in those of the other parts of the body. When in inflammation of the stomach or intestines the pulse is full & round, it is owing to some other arteries sympathizing with the vessels of those parts. 4 By the pulse rising after the force of the impression is removed by bloodletting. 5 By its being sometimes attended with preternatural slowness or interruptions. This is however far from being an universal rule. (In fevers of great depression the pulse sometimes resembles a tree shattered by lightning, which cannot be raised but by the hand of art.)

II The Catgut, sulky, locked or corded pulse. This is a distinct, small, tense pulse occurring in malignant fevers. It feels like a tense piece of catgut to the fingers, & hence its name

III The Synochus Fortis pulse. It is full, round, vigorous, frequent & quick, but without tension or hardness. It occurs in the yellow fever, Pneumonia Notha, & out an congestion of the brain.

IV The Synocha, a full, frequent, quick, not round, but

*The Heart seems to dilate beyond its usual dimensions.

but tense pulse. It is the common inflammatory pulse; and im-
parts a sensation to the fingers like that produced by feeling a
large quill. I have called it after Dr Cullen. It has different
grades of tension. I once felt it in a hydrophobic patient in
whom it was more than tense, it was hard.

V The *Synochula*. This is a frequent, quick, tense & small
pulse. It is like a *synocha* but smaller in diameter. It is a
protracted *synocha*, and feels like a small quill. It is generally
attended by heat & thirst. It occurs in chronic Rheumatism,
Gout and Mithria.

VI The *Synochus Mitis*. Is a full, round, soft & frequent
pulse, without tension, occurring in mild Billious fevers, and
in intermittents.

VII The *Synochoid*. is a compound of the *Synochus* and
synocha pulses; it is partly tense & partly soft, and feels
like a shattered quill, or a quill trodden on. It occurs in the
declining stage of inflammatory fevers.

What constitutes the difference between the *synochus* and
the *synochula* & *synochoid* pulses? I suspect that in the *sy-
nochus* there is diseased action both in the heart & arteries,
while in the last it resides only in the arteries themselves,
in their muscular fibres, from inflammation.

VIII The *Typhoid*. is a frequent pulse with now & then a full,
round, tense stroke. It occurs in the jail, hospital & ship fevers,
and

^x I have said the depressed pulse resembles a tree bent
beneath a blast of wind, when the force of the stimulus is
removed it rises again; but the typhus resembles a tree
shattered by lightning, it cannot be again raised by the
hand of art.

and in the passage from the inflammatory to the slow state of cronic fever.

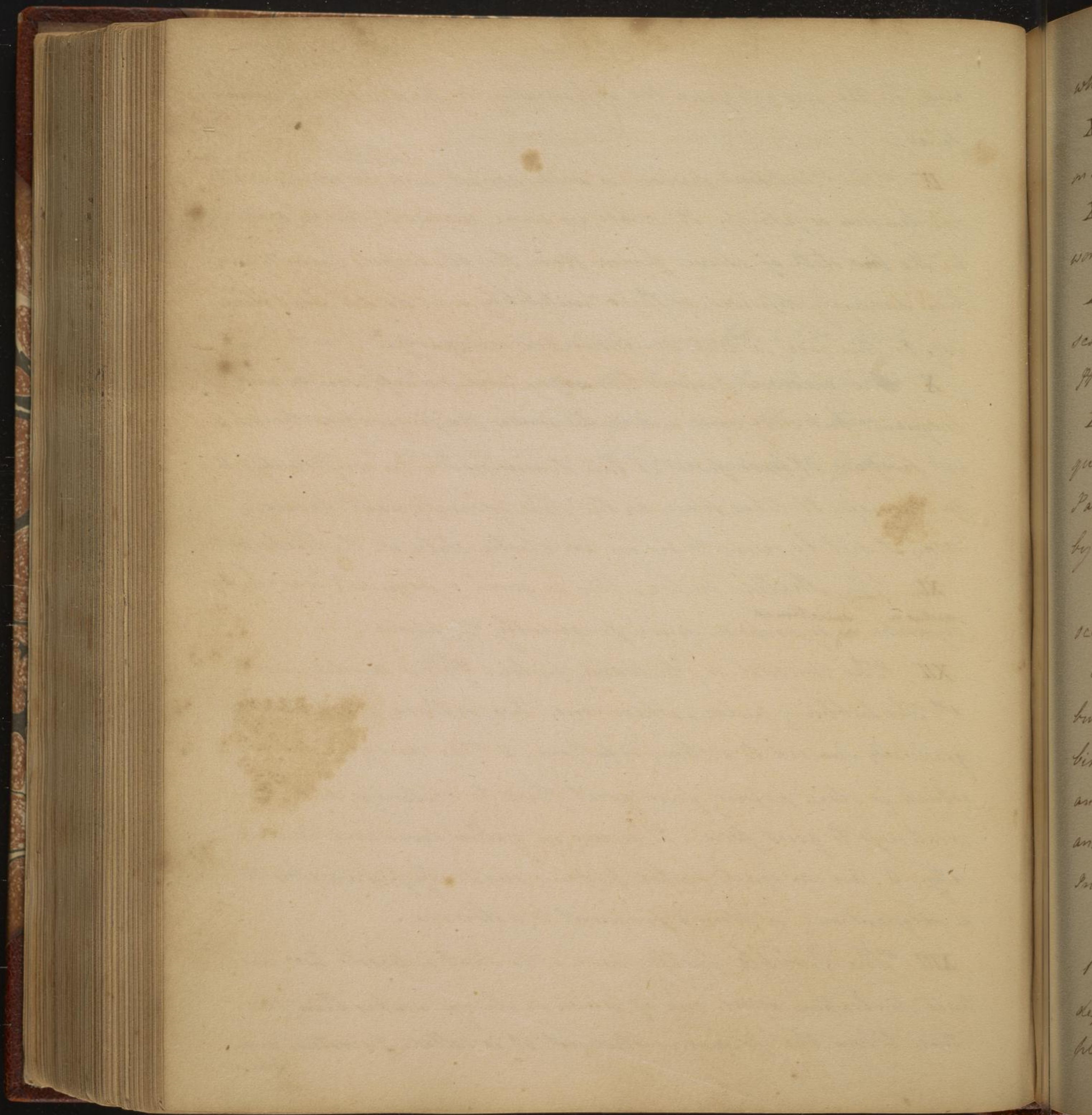
IX The *Sphygmus* pulse, is weak, small and frequent, without tension or fulness. It occurs in some malignant fevers, and in the low state of cronic fevers. Here the bloodvessels seem to have been suddenly deprived of their irritability, and do not bear bleeding. In this case cordial remedies are necessary -

X The Gaseous pulse. This is of natural fulness, round and frequent, but very soft and sinks under the finger upon the slightest pressure. I have given it this denomination in conformity with Dr Dalman. It takes place in the close of malignant fevers - May it not be owing to air in an elastic state in the bloodvessels?

XI The *Hectic* pulse, this is quick & frequent; rarely *synochus* or *synocha*, ^{sometimes} *synochoid*, more frequently *Sphygmoid*.

XII The Unequal or fluctuating pulse. This is divided into - 1st The hobbling pulse, when one, two, or three weak strokes gradually succeed to a strong or full one. 2 The unequal pulse which is slow, passing from great force to weakness, and from weakness to great force. It occurs in yellow fever and in debility. 3 an unequal pulse passing suddenly from a slow to a frequent one, or from a frequent to a slow one.

XIII The Double pulse, here after short intervals two distinct pulsations occur, one of which is always weaker than the other. When the former is strongest it is called *Dicrotus*, and when



when the latter is the strongest it is called. *Caprizans*.

XIV The *Serrated* pulse, small & frequent, strikes the fingers on one part only at a time, takes like a saw.

XV The *Vermicular* pulse, is small and contorted like a worm under the fingers.

XVI The *Creeping* pulse, is small, weak, frequent, and scarcely perceptible; occurring in the dying stage of disease.

It sometimes rises a little & then falls back again.

XVII A pulse occurs in fever, apparently natural in frequency and force. This is always attended with great danger. I am unable to distinguish it from a natural pulse except by other concomitant symptoms.

The morbid states of the pulse have been supposed to occur only when the Cerebellum is diseased.

None of these states of the pulse exist singly in fevers, but are combined in the following ways. 1 A twofold combination as quick & frequent; slow & intermitting; depressed and weak. 2 In a threefold combination, as full, strong and frequent; small, weak and slow; full, strong & quick. 3 In a fourfold combination as full, strong, quick and frequent.

There are also some other variations in the pulse.

1 There is a full, bounding slow pulse, which does not depart from the natural state. It occurs in Palsy & Hemiplegia; is generally fuller & slower upon the side affected.

+ The depression of the pulse generally arises from
a degree of debility, but is sometimes continued
from habit - as in convalescents from intermittent
fever.

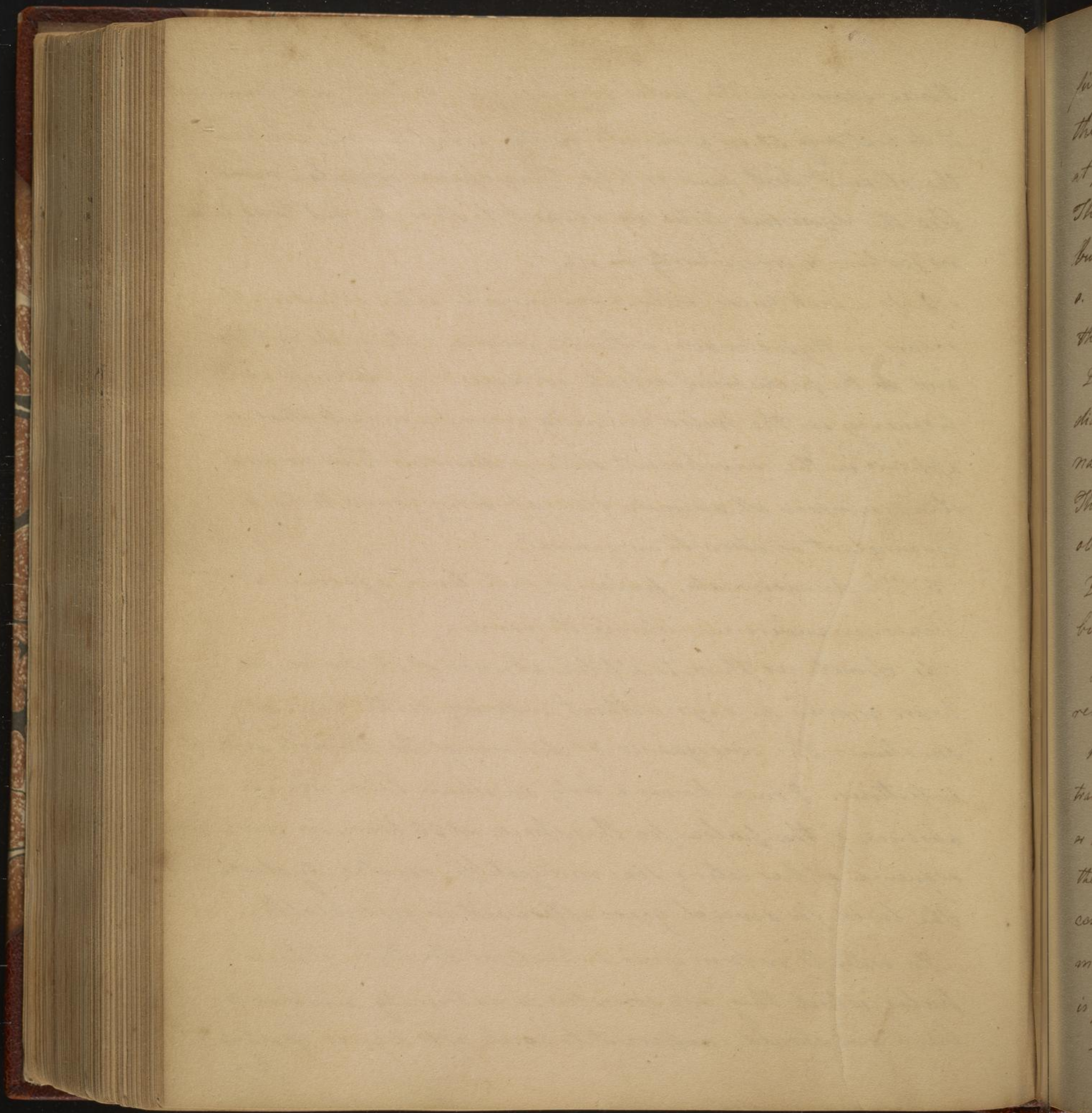
I once examined the pulse of a paralytic patient and found it to beat only 50 in a minute on the affected side, while on the other it beat from 80 to 90. This species of pulse resembles the *Symochus fortis* in respect to strength, but there is no jerking or irregularity in it.

2 Is a weak pulse without any irregular action or jerking. It occurs in Hypochondria without a morbid state of the system, and in the predisposing debility of fevers. Weakness and frequency in the pulse generally accompany each other, as appears in the convalescent state of disease. This circumstance occurs in all animals; slowness being found to be a concomitant of strength in general.

3 The Aneurismatic pulse, is full tense & jarring; it occurs in aneurisms; whence its name.

4 Sometimes there is a total absence of the pulse for hours or even for days without inducing death. This is sometimes the consequence of diseases of the stomach and intestines. I once knew a lady in whom there was an absence of the pulse for the space of 36 hours, in consequence of her eating six indigestible roasted oysters. She lived for several years afterward in good health.

In order to inform your patients of the state of their pulse which they are sometimes extremely anxious to learn you should compare it to a scale of 10 degrees of which five



five are above & five below the healthy point which is at 0. Thus the synochus fortis is at five degrees above *par* or 0, synocha at four, the synochula at three, and the typhoid at one. The typhoid pulse is frequently natural in ^{force} ~~appearance~~ but is irregular. The pulse of debility is at 3 or 4 below 0. The creeping pulse occurring at the close of life is at 5; the lowest below *par* or 0.

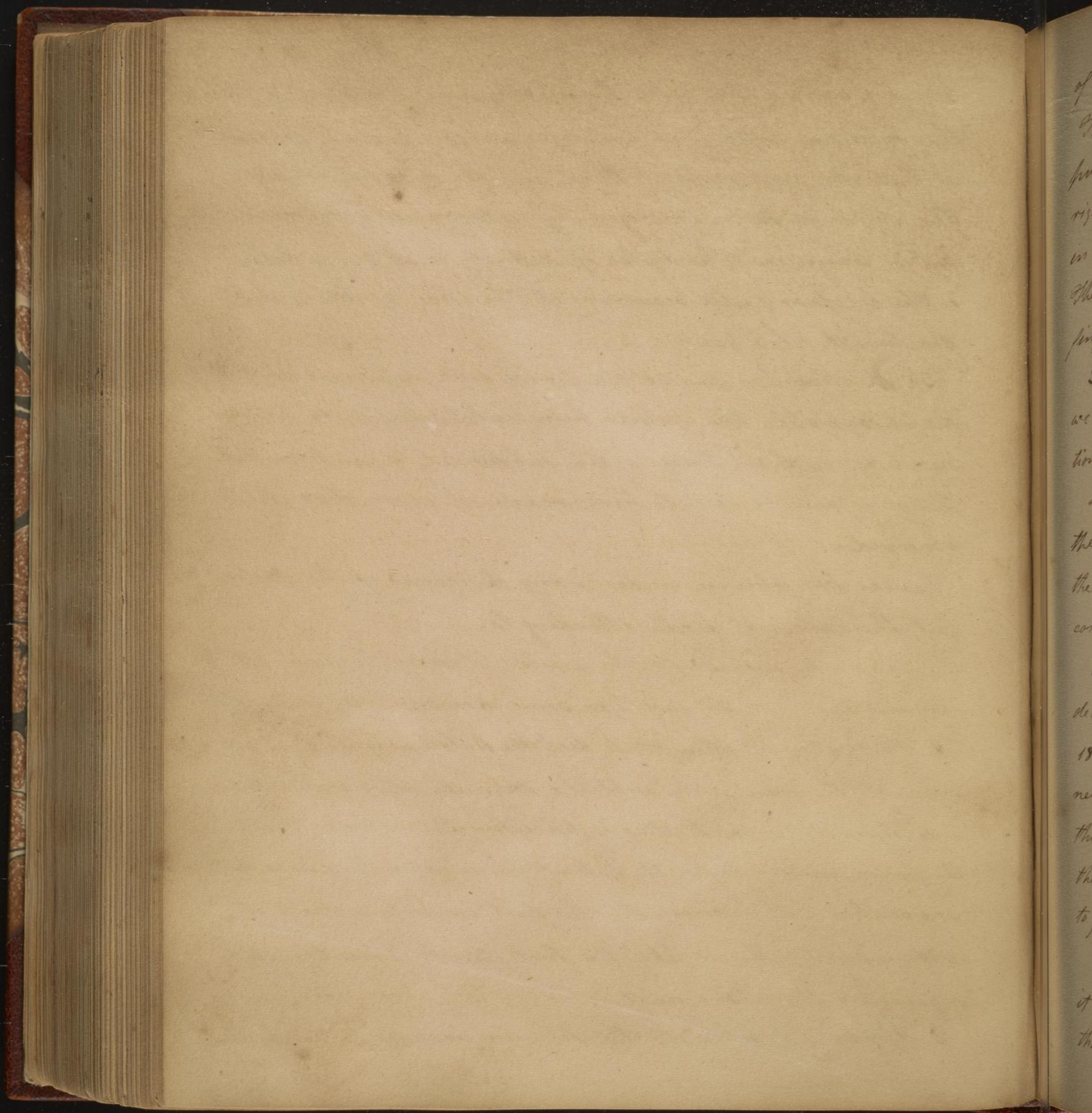
Dr Bordeau has divided the pulse into superior & inferior diaphragmatic, the former being subdivided into pectoral, nasal &c. and all these again subdivided & compounded. This man may be said to have reasoned more than he observed.

Damas has likewise made many divisions of the pulse but they are not worth attending to.

I have now enumerated the morbid states of the pulse. It remains that I should give you some directions for feeling it.

1 Never attempt ~~attempt~~ to feel the pulse on your first entrance into the room, as the sight of a Physician either accelerates or depresses it, by exhilarating or depressing the patient. Feel the pulse however before the patient has described his disease, for conversation will increase it. The first impression which it makes upon the fingers, like the first aim by a marksman, is generally the most accurate.

2 Apply if possible all the four fingers, and certainly three
of



of them; they will impart more sensation than a single one.

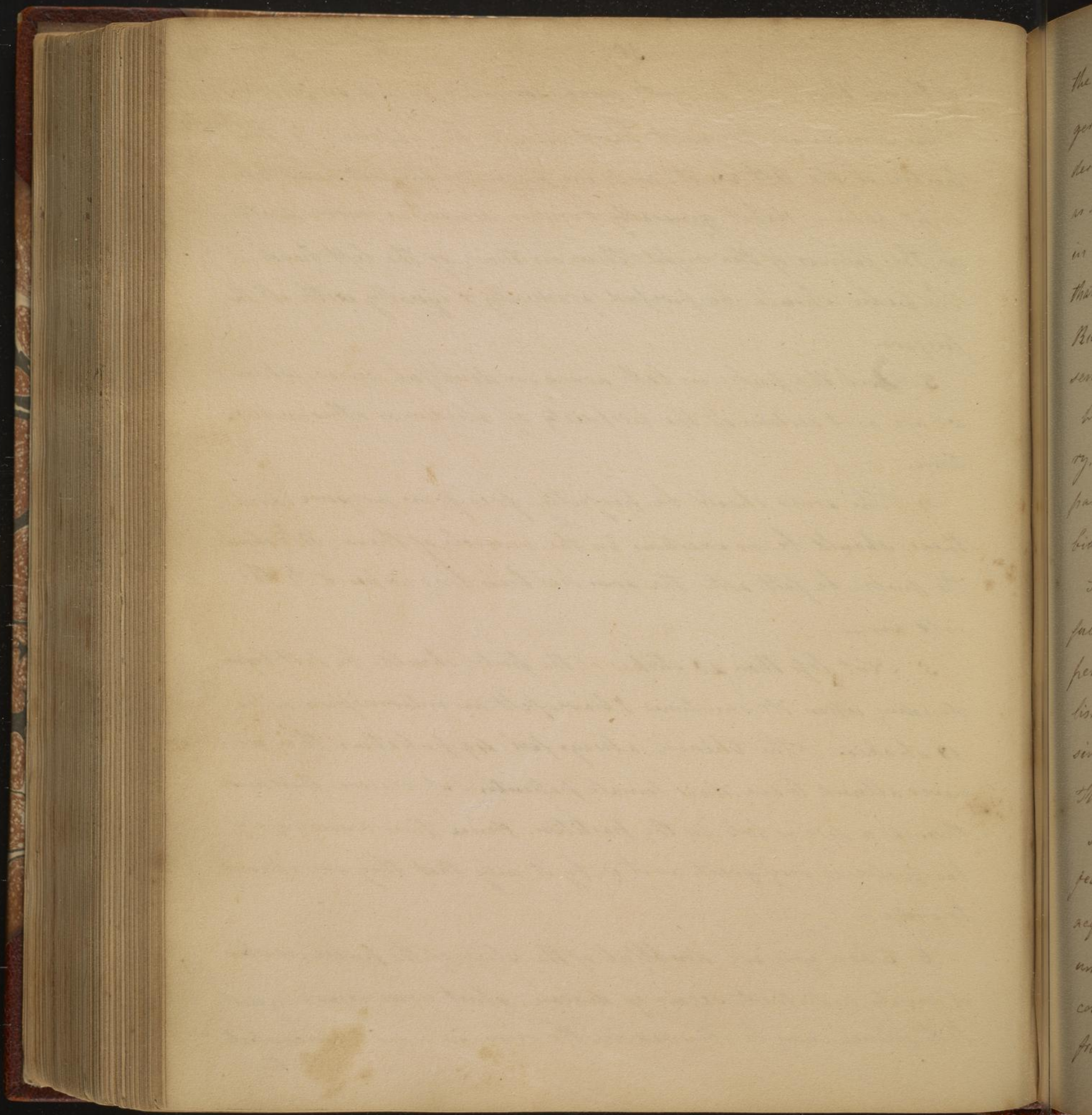
The fingers of the right hand should be applied to the pulse of the left wrist, and the fingers of the left hand to the right pulse. Habit generally renders sensation more acute in the fingers of the right than in those of the left hand - The pulse should be pressed gradually & equally with all the fingers.

3 Feel the pulse in both arms in doubtful cases, when we are not certain of the propriety of bleeding or other evacuations.

4 The arms should be perfectly free from pressure, and there should be no exertions in the muscle of them: Nor should the pulse be felt after the arm has been long exposed to the cold air -

5 Not less than 20 strokes of the pulse should be felt before deciding upon it; sometimes I have felt an intermission after 18 strokes. The Chinese always feel 49 pulsations, they are never allowed to see their female patients, but receive their hands through a door or hole in the partition. Hence their knowledge of the pulse is very great, as it is by it only that they are allowed to judge -

6 When you are doubtful of the state of the pulse, or when it emits indistinct signs of disease, shut your eyes & request that silence may be observed in the room, in order to concentrate the
the



the sensibility in the ends of the fingers. The sensibility of the fingers is accumulated by holding them in warm water; this once rendered the pulse of a gentleman perceptible when he was considered as dead and upon the point of being committed to the ground. Or in doubtful cases take off your fingers for a little while in order that the sensorial powers may have time to accumulate in them. Rubbing the fingers upon a rough surface will also increase the sensibility, probably by the force of contrast.

When you are unable to feel the pulsations of the radial artery, attend to those of the temporal. This vessel exhibits more partial signs of disease, but is more indicative when the morbid action is seated in the brain.

Stop watches, second hand watches or pulse glasses are useful to young practitioners; but in this country we do not depend so much upon the frequency of the pulse as the English Physicians do; we lay more stress upon its force & tension, since many things increase its frequency that do not its force. This is the case with the passions of the mind.

I have thus mentioned the most material facts upon the subject of feeling the pulse. It is said that it is difficult to acquire a knowledge of the different pulses which I have enumerated, and that to do it, it is necessary to possess an uncommon degree of sensibility in the fingers. I must differ from those who entertain this opinion; although it must be the

X Geometry.

the case in the sense of touch as well as in the others, that it will differ in acuteness in different persons; this difference however is very inconsiderable. Ladies and even nurses frequently acquire a tolerably accurate knowledge of the pulse, and it may be attained with proper attention by every student of medicine during the common course of his studies.

It is common for us to rely upon the pulse to direct us in the use of the lancet; but it should likewise regulate the administration of Opium, Wine, Bark, Vomits, Sweats, Steel, Blesters, the Pediluvium, aliments & drinks, and even the use of hot & cold baths. Physicians are frequently remarkable for a fondness for particular symptoms of disease, as the appearance of the tongue, urine, faces and skin; I place my reliance upon all of them, but more especially upon the pulse. Pythagorus is said to have engraved over the front door of his school, "Let no man enter here who is not acquainted with Philosophy." Did it depend on me alone I would inscribe, not only over the front, but over every other door of this building, "Let no man depart hence who is not acquainted with the pulse"

IV Of the Divisions of Disease

1 Disease has been divided into Idiopathic & Symptomatic; but this division I consider an improper one because
 1st Diseases are ^{sometimes} ~~often~~ the same whether they be Idiopathic
 * University of Pennsylvania or

A Cataract is an intercurrent disease

or symptomatic. Thus Hydrocephalus internus is the same whether it arise from worms or any other cause. Hydrophobia also is the same whether it arise from the bite of a rabid animal or from cold, or from the bite of an animal which is not rabid. 2 Many diseases diffuse themselves by sympathy, and are then as bad as the original one, and frequently even worse. 3 The symptomatic often becomes the primary disease, and even worse than the primary one, and it is always deserving of attention.

2 They have been divided into acute & chronic, but acute diseases are not always painful, and chronic ones are frequently much so. It would be better to say they were transient or protracted.

3 Disease is divided into Epidemic, Endemic, Sporadic, and Intercurrent. 1st Epidemics, these affect whole communities nearly at the same time, and arise from the insensible qualities of the atmosphere, from bad water &c. Some of them spread from the first cause and some from contagion.

2 Endemics, these appear in both town & country, and arise from causes obviously domestic. Some diseases are both Epidemic & Endemic. 3 Sporadic diseases are solitary cases

of disease that are sometimes of the Epidemic & sometimes of the endemic kind. 4 Intercurrent diseases are induced by the sensible qualities of the atmosphere, as heat cold &c.

5 8

4

4

part

and

V

of

of a

that

men

disc

ce

ins

ist

man

whi

is

the

hot

its

war

75

5 Contagious diseases affect through the medium of the air or by contact, small pox does so in both ways -

4 Diseases are divided according as they affect different parts of the body, sometimes they affect more than one and sometimes the whole of them.

V Of the Remote Causes of Disease

This is an important part of our course, for a part of the cure of diseases depends on the removal of their remote cause or that which induced the proximate cause. I shall therefore enumerate the various remote, predisposing and exciting causes of disease -

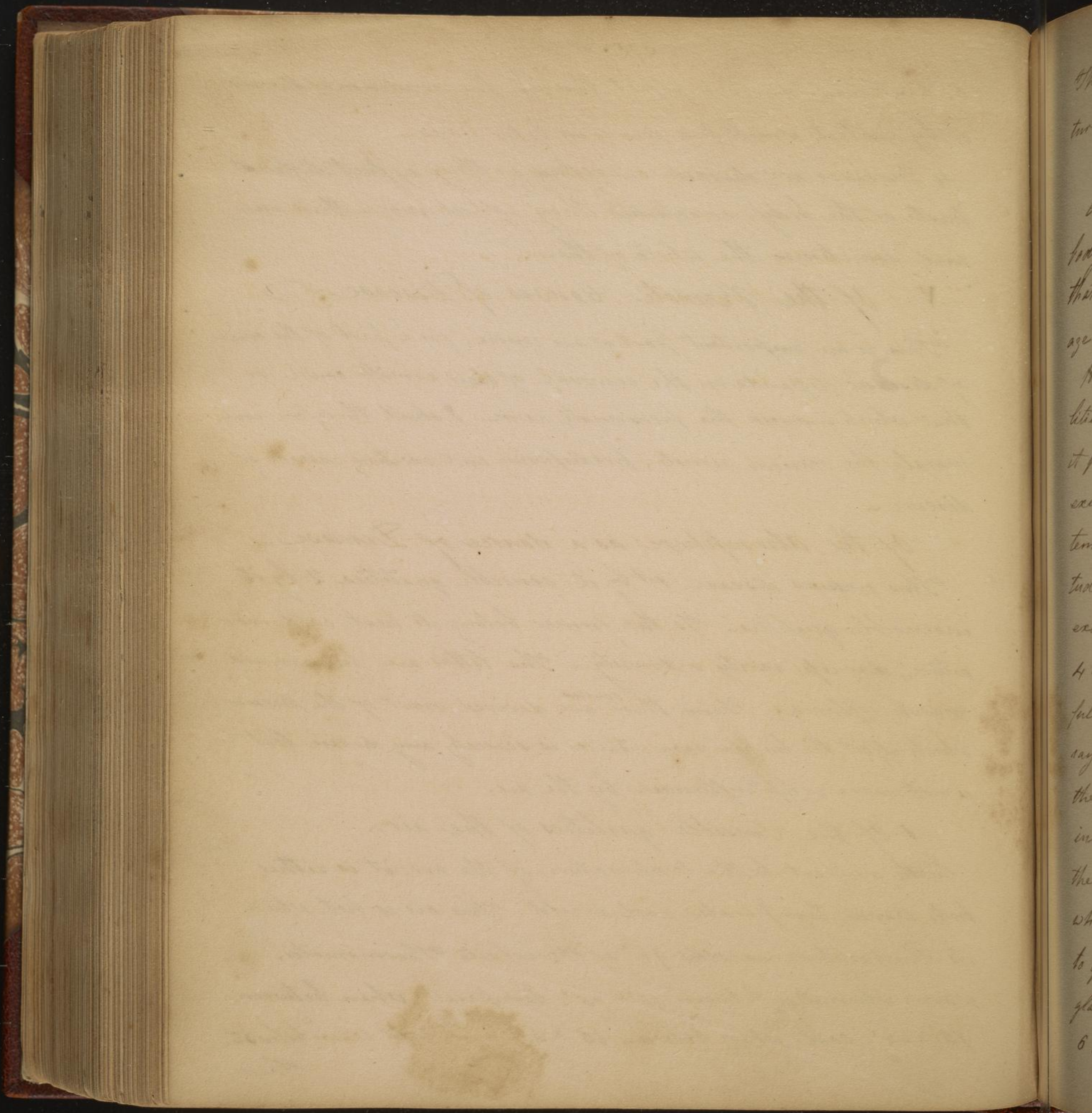
Of the Atmosphere as a source of Disease -

This induces disease 1st by its sensible qualities, 2 by its insensible qualities. To the former belong its heat, cold, moisture, dryness, rarity & density. The latter are human and marsh effluvia. From these ^{sources} are derived most of the diseases which affect the human race, there is scarcely any disease that is not more or less influenced by the air.

1 Of the Sensible qualities of the air.

With respect to the temperature of the air, it is either hot, warm, temperate, cool or cold. The air is hot when its temperature exceeds 96° of Fahrenheit's Thermometer, - warm when it is between 96° & 75°; temperate when between 75° & 65°, cool when between 65° & 32°, and cold when below 32°.

These

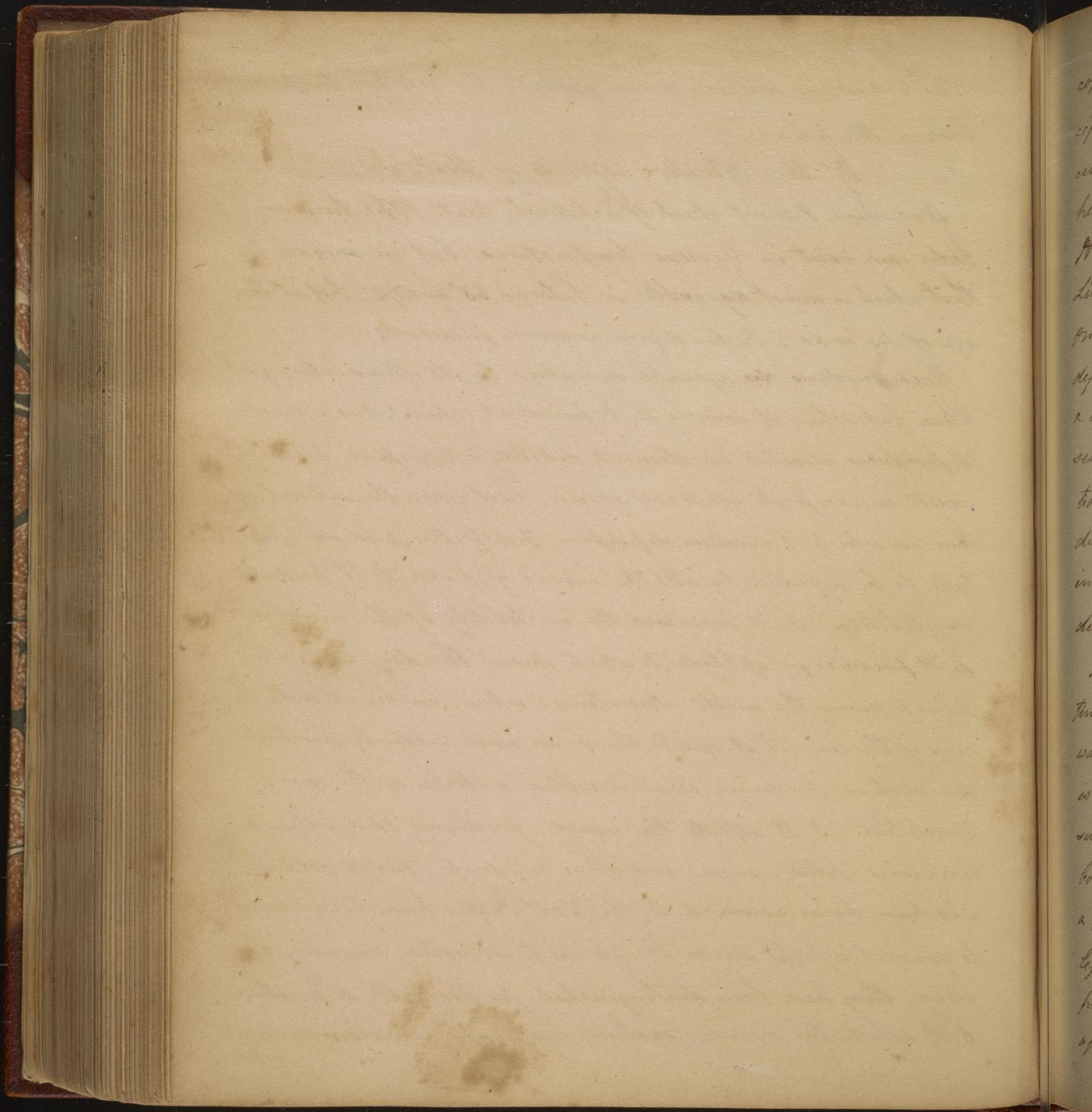


These divisions however do not apply to the relative temperature of the air.

Of the Positive effects of Heat.

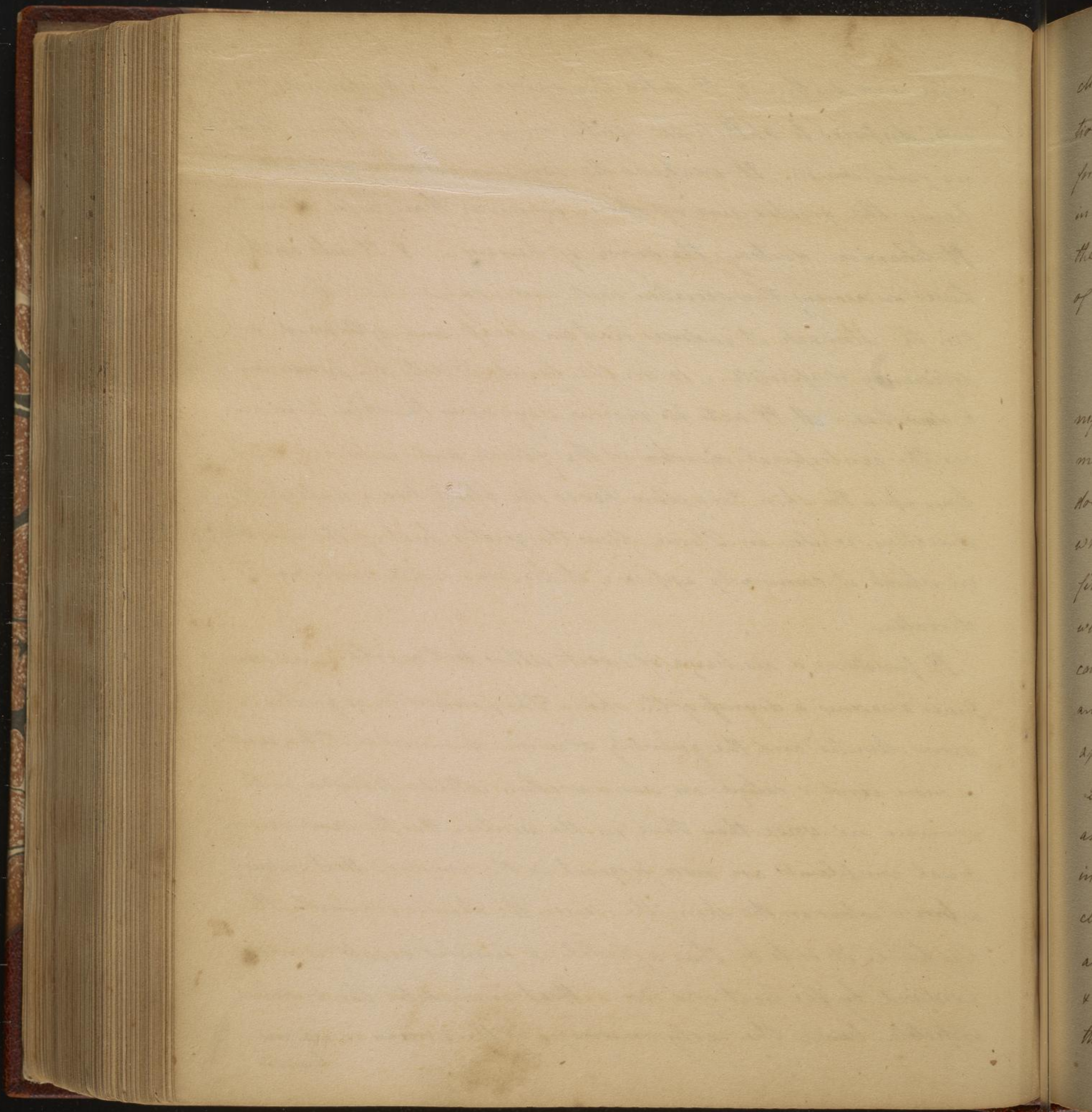
And here I do not speak of artificial heat. The human body can exist in various temperatures, but in middle life that which is most agreeable is between 65° and 72° ; but at the age of 45 or 50 a higher degree is more pleasant.

Heat produces ~~the~~ agreeable sensations by its stimulating qualities, but when it exceeds that point at which it is agreeable it produces elevated excitement, debility & depression. When it exists in excess its effects are shewn, first upon the arterial system, in which it induces depression, prostration, and an aptitude to be affected by all the causes of fever. 2 It produces excitability. 3 It increases the irritability of the muscles. 4 It produces an aptitude to sleep during the day; and wakefulness during the night. Sometimes when combined with the rays of the sun it affects the brain and suddenly prostrates the system, producing what is called a stroke of the sun or insolation. 5 It affects the mind, producing sprightliness, then irascibility, anger and even madness. Hence soldiers who have been removed to the West Indies have been known to quarrel & fight duels, though in their native country, England, they had been distinguished for peaceable dispositions. 6 It affects the nervous system, producing, convulsions, syncope



cope and death. 7 It dulls the sense of touch when in excess, disposes to ophthalmia, Gutta serena, and sometimes produces false vision. It weakens the sense of smell and of taste, hence the greater use of spices in warm than cold climates. It likewise destroys the sense of hearing. 8 It acts on the Liver increasing the secretion and acrimony of the bile. 9 On the stomach it induces first an excess, and afterward a deficiency of appetite. 10 On the bowels it acts by producing a diarrhoea. 11 It acts in various ways upon the skin. It increases the centrifugal direction of the fluids, and disposes to eruptions upon the skin. In yellow fever the blood has a centripetal direction, while in Plague, from the greater heat of the climates in which it commonly appears, it has more of a centrifugal direction.

It produces a discharge of sweat, either hot or cold, and sometimes occasions a dryness of the skin. The perspiration is greater in warm climates, and the quantity of urine diminished. The sweat is more acrid & saline in warm weather; catarrhs therefore in the summer are worse than those in the winter. For the same reason bowel complaints are more frequent in the summer. Heat induces a brown colour in the skin, the fairer the skin is originally, the less liable it is to be thus affected. A similar result is not produced by the heat of a fire. Heat invigorates the venereal appetite, hence the early marriages of the women in warm climates

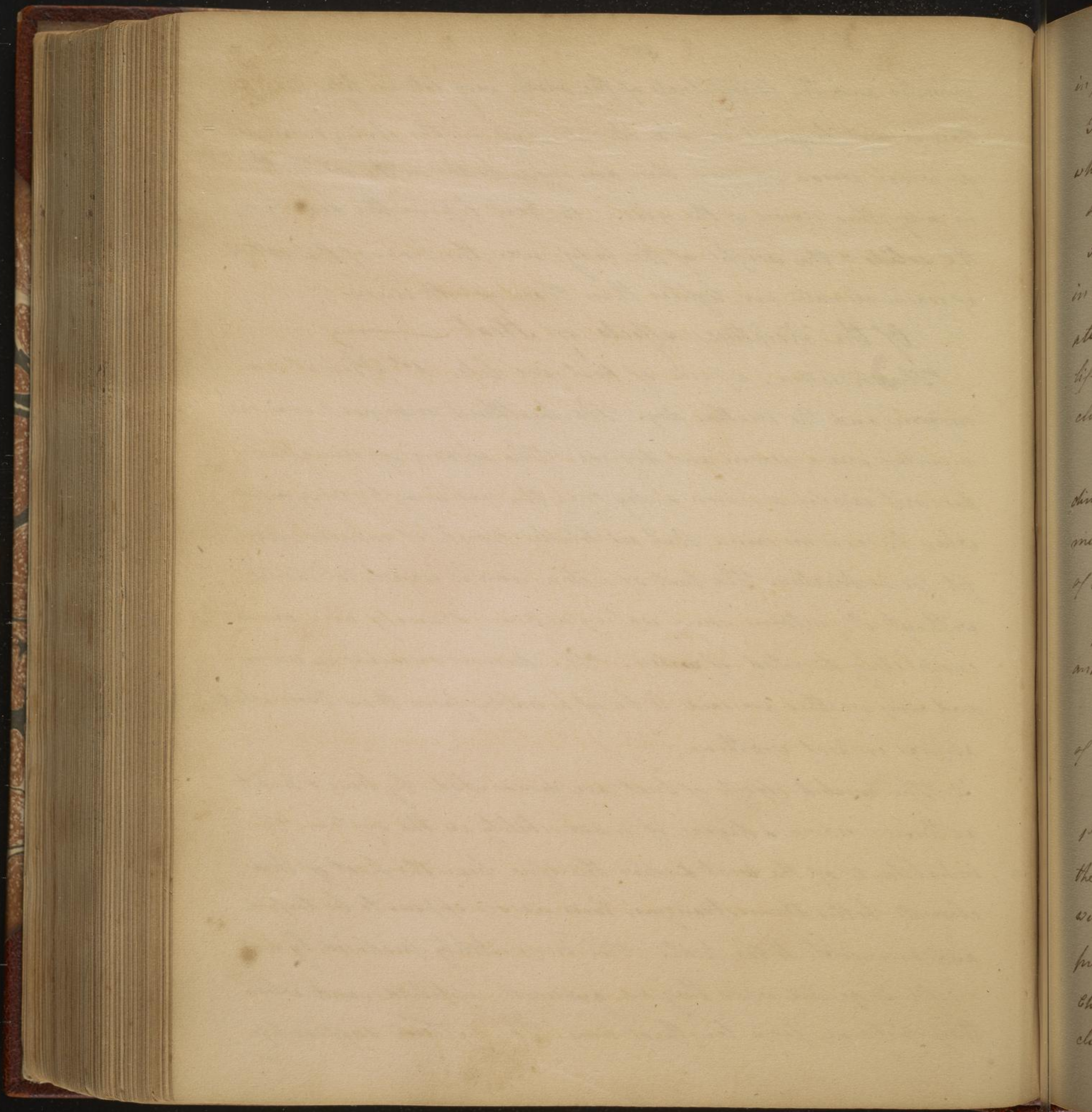


climates and the fruitfulness of the males very late in life. Conception is most frequent in cold climates, and in the spring & summer, for which reason we find there are more births in the winter than in any other season of the year. 13 Heat lessens the density of the solids & the weight of the body; even the bones of the natives of warm climates are lighter than those of cold ones.

Of the Relative effects of Heat

The Relative effects of Heat are less. 1st When it is uniform and the weather dry. The healthiest summer I ever remember was a warm and dry one. The absence of rain alone does not render a season a dry one, the air may be very moist when there is no rain. But air totally devoid of moisture is unfit for respiration. The heat of a stove room is scarcely tolerable without it contains some watery vapour. scarcely any air is completely divested of water. The diseases occurring in warm and dry weather are said to be of a milder form than those which appear in wet weather.

2 The morbid effects of heat are diminished by time & habit, as these produce a degree of insensibility in the system. The inhabitants of the West Indies therefore bear the heat of their climate better than strangers, their nerves appear to be torpid and insensible to the heat. The insensibility produced by heat & cold is greater when they are gradually applied, and when they continue for a length of time. The system suffers less
in



in passing from extreme heat to cold, than from ^{extreme} cold to heat.

3 Winds diminish the tendency of heat to produce disease when they come from a dry & healthy country.

4 Motion lessens the morbid effects of heat.

5 That state of the system which is called strictum obviates in some measure its morbid effects. Old people in warm climates therefore suffer less from the heat than those in middle life. Life is prolonged in old people by migrating to warm climates.

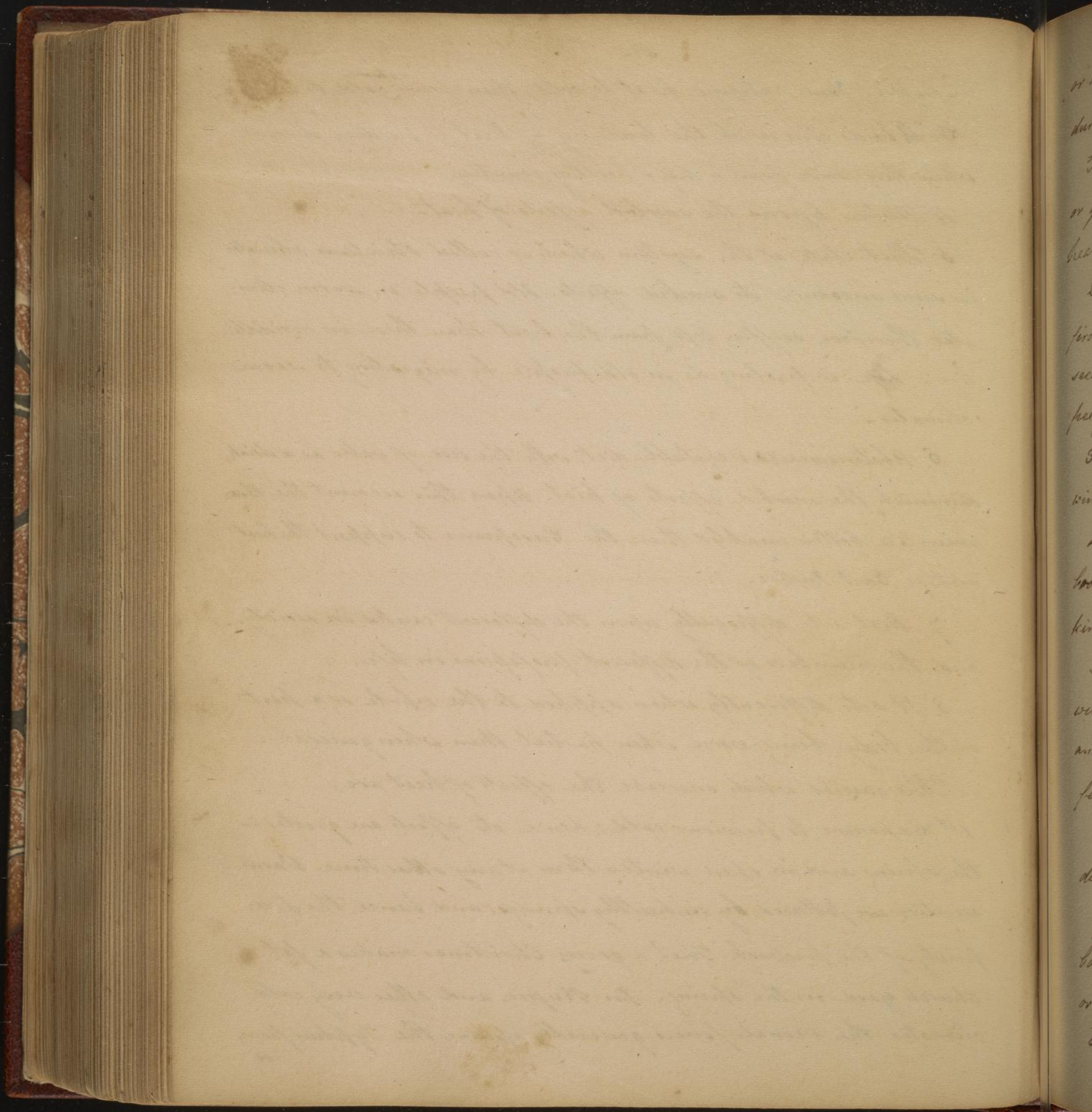
6 Abstinence & vegetable diet, with the use of water as a drink, diminish the morbid effects of heat. Upon this account the Brahmans are better enabled than the Europeans to support the heat of the East Indies.

7 Heat acts differently upon the different ranks in society, and the members of the different professions in life.

8 It acts differently when applied to the whole or a part of the body; being worse when partial than when general.

The causes which increase the effects of heat are,

1st Exposure to previous cold; hence its effects are greater in the spring and in open winters than at any other time. Warm winters are followed by unhealthy springs, and hence the propriety of the proverb, That a green Christmas makes a fat church yard in the spring. In Russia and other very cold climates the vernal fevers generally assume the Typhus form,



or are of a malignant nature, because excitability is exhausted during the winter.

The effects of sudden heat to a frozen limb are mortification or great pain. When the cold has been more transient the heat produces violent reaction and considerable pain -

2 Moisture combined with heat increases its morbid effects; first by preventing the escape of moisture from the body; and secondly, by allowing noxious exhalations to take place more freely -

3 Heat is more debilitating when it is applied in the form of wind -

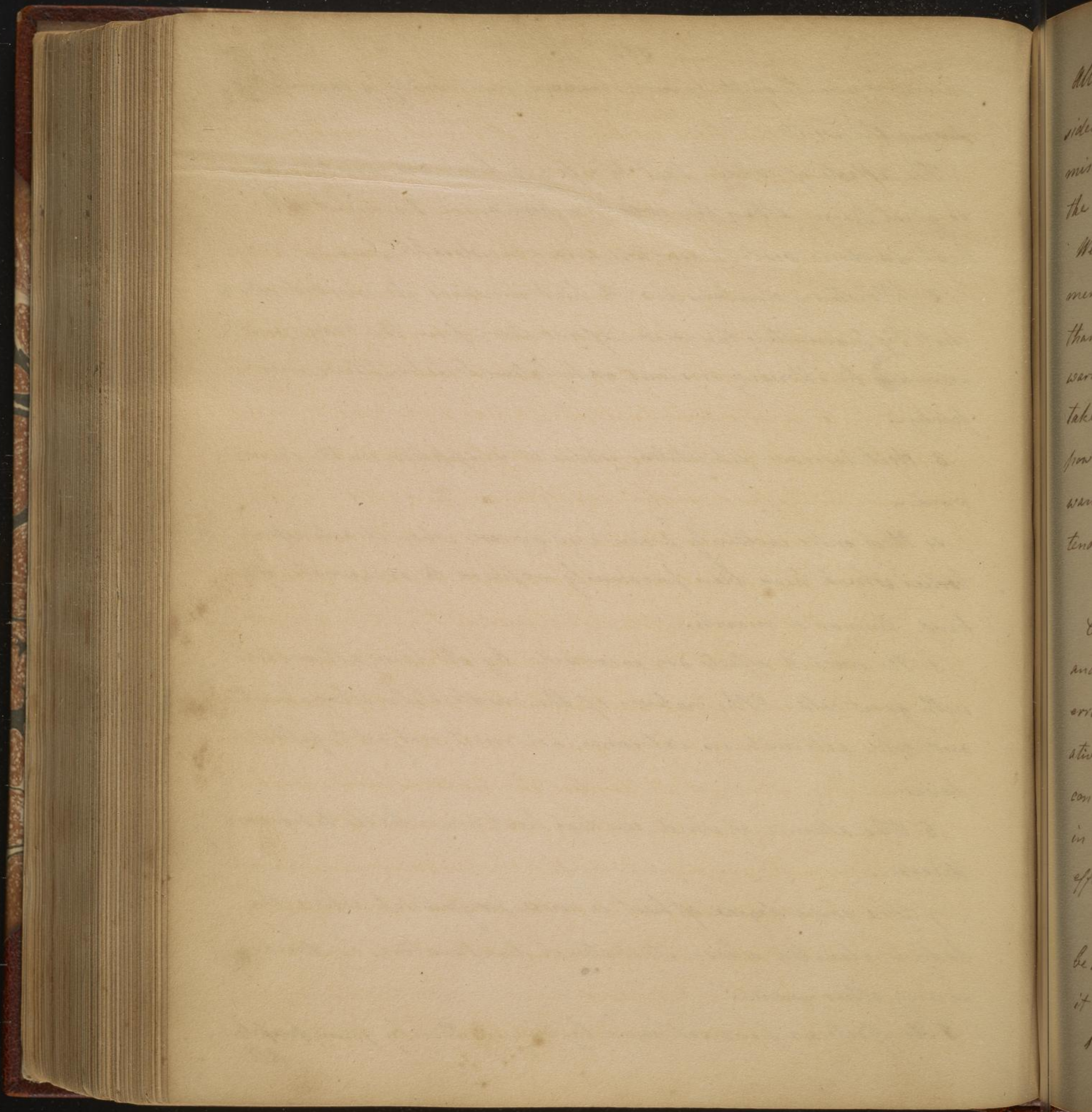
4 It is more certainly a cause of disease when it acts upon bodies which have been previously exposed to miasmata of any kind, human or marsh.

5 Its morbid effects are increased by its being alternated with great cold. The natives of the middle states where heat and cold alternate in extremes, are most subject to yellow fever.

6 The absence of wind renders heat more liable to produce disease.

7 The same degree of heat is more prejudicial when the body is elevated above its natural temperature by disease or any other cause.

8 Its effects are perceived more by very old than by young people.
all



All the effects of heat are varied by its grades; when it is considerably below the heat of the body it is most productive of mischief. A moist & temperate air gives a fine complexion to the skin.

We are led by a review of what has been said, ^{to} enquire why men of warm climates have been more favoured by nature than the inhabitants of cold ones. Egypt & Greece which ^{are} ~~were~~ warm countries, were the mothers of arts & sciences. We should take it into recollection that mankind has it much in his power to protect himself from the influence of heat, & that warm climates afford much more leisure than cold ones to attend to such subjects as these.

Of the direct and indirect & relative effects of Cold.

Cold is a negative quality, being merely the absence of heat, and it acts as a sedative upon the body, although it has been erroneously considered as a stimulant. That it ^{produces} ~~produces~~ sedative effects I infer first, Because it debilitates the body & contracts the skin. 2 It renders the pulse slower & weaker, in the same manner with vene section, purging &c. 3 Its effects in disease are similar to those of sedative medicines.

Cold has been supposed by Dr Cullen & Dr Currie to be a stimulant. I shall mention some of those cases in which it was supposed to act as such.

1st When the system is much debilitated by heat, cool ^{air}

[Faint, illegible handwriting on aged paper, likely bleed-through from the reverse side.]

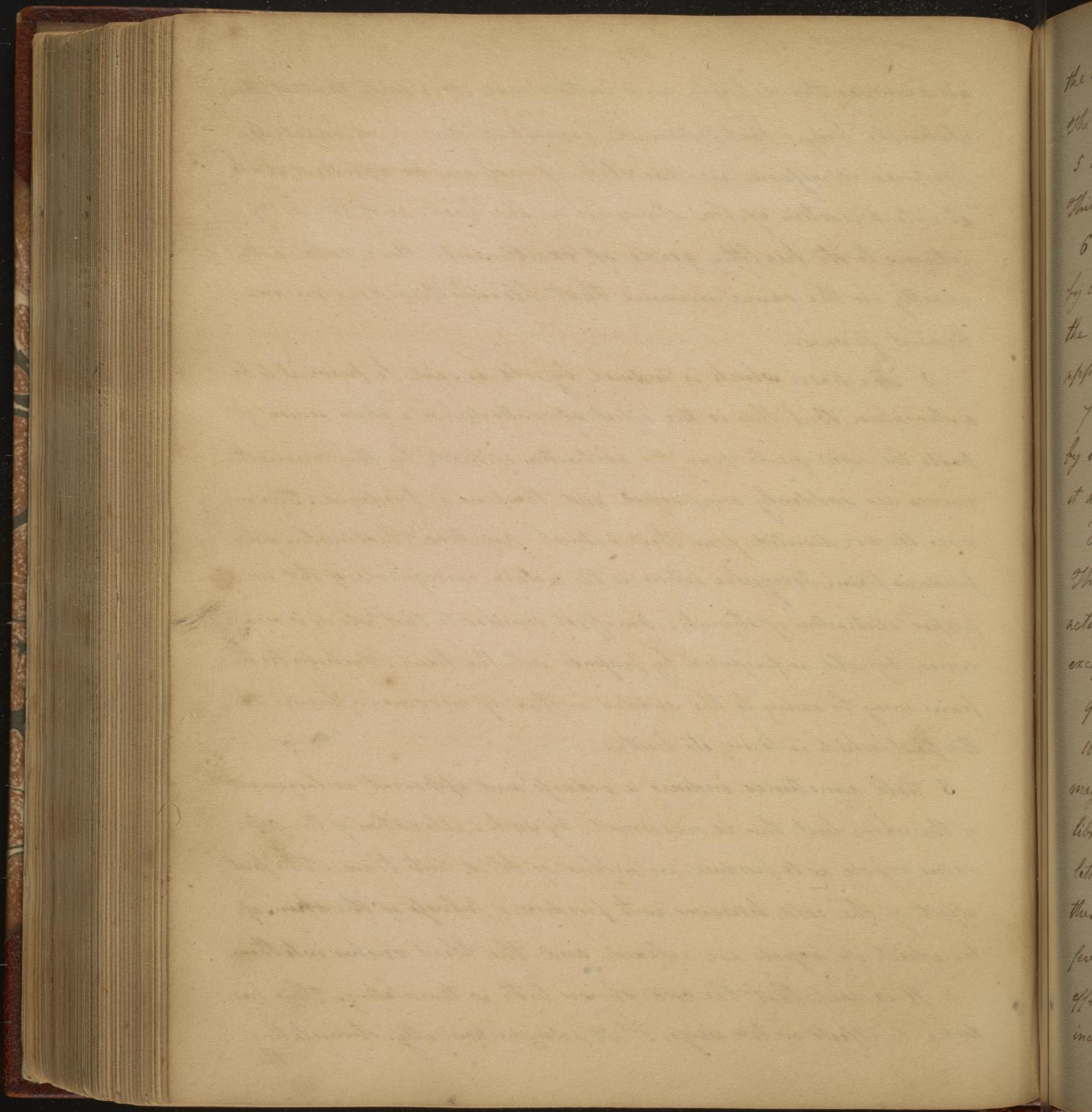
[Faint, illegible handwriting on the right edge of the page, likely bleed-through from the reverse side.]

air removes the debility, and in this case it is said that it stimulates the body. But I formerly remarked that heat sometimes produces depression; in this state if cool air be applied, it abstracts a portion of the stimulus of the heat, and the body returns to its healthy grade of excitement. Here cold acts exactly in the same manner that bloodletting does in malignant fevers.

2 The pain which is induced by cold is said to prove it to be a stimulus. But this is the effect of contraction or a closer union of parts the solid parts from the abstraction of heat; by this means the nerves are suddenly compressed and the pain is produced. The nerves too are divested from their natural functions. The abstraction of life produces pain. Irregular action is the certain consequence of the improper abstraction of stimuli. An effect similar to that which is occasioned by cold is produced by pressure with the hand. Perhaps too the pain may be owing to the sudden influx of nervous influence to the part which is losing its heat.

3 Cold sometimes induces a redness and apparent enlargement of the skin; but this is occasioned by such a relaxation of the cutaneous vessels as to produce an influx of blood into them. The first effect of the cold however is to produce a fulness of the skin, after which its vessels are relaxed and the blood rushes into them.

4 It is said that the cold shower bath is stimulating. This produces its effects in two ways. 1st It acts mechanically, stimulating the



the skin by its weight. 2 It abstracts heat & accumulates excitability.

3 The excretions which it sometimes produces are very considerable.

5 A draught of cold water often induces a copious perspiration. This it does by reducing the system down to the sweating point.

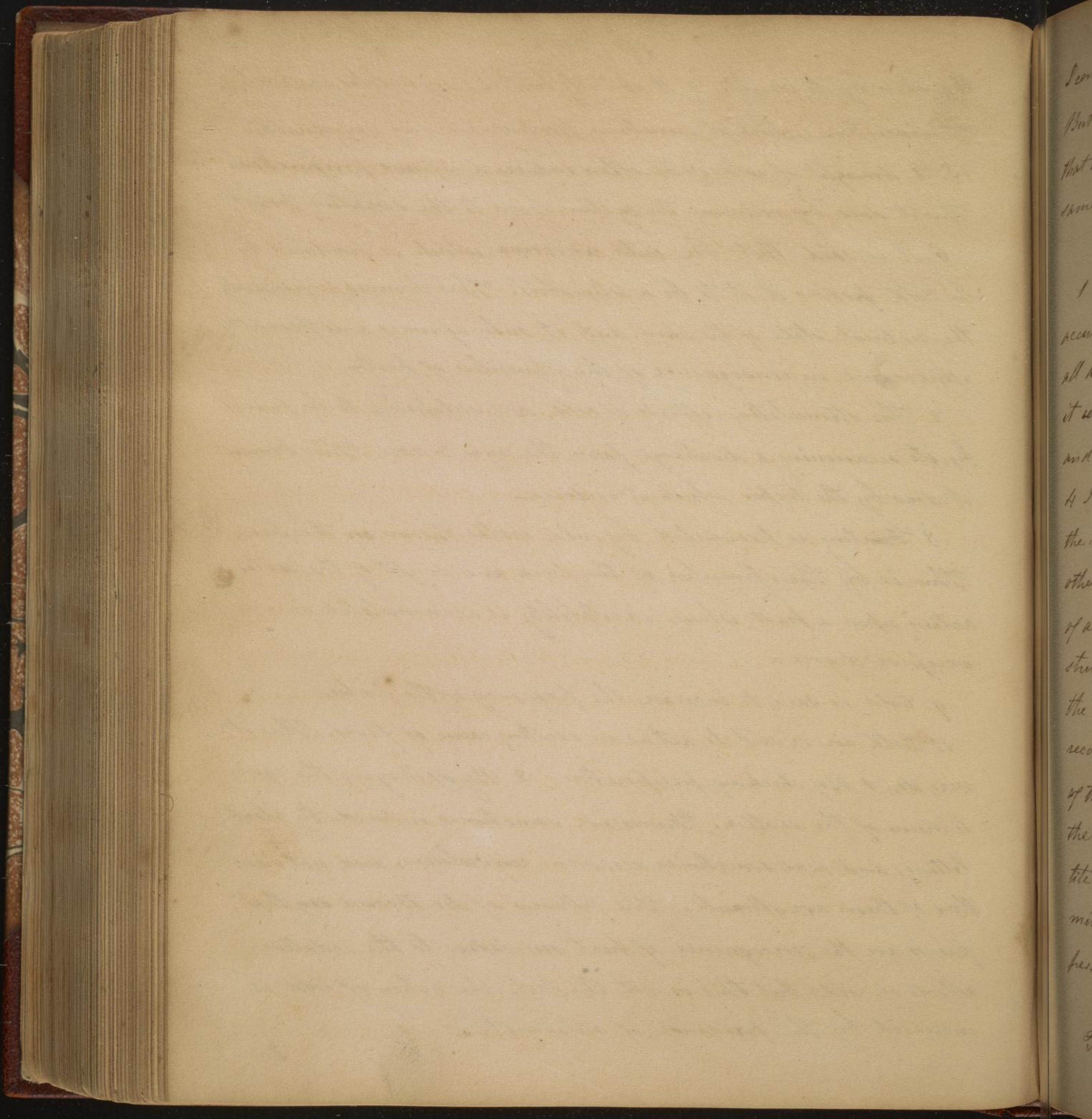
6 It is said that the cutis anserina which is produced by cold proves it to be a stimulus. This however is probably the natural state of the skin, and it only assumes a different appearance in consequence of the stimulus of heat.

7 The stimulating effects of cold are supposed to be proved by its occasioning a discharge from the eyes & nose. This however it does by the torpor which it induces.

8 Fainting is prevented by cold water thrown on the face. This is by the stimulus of the force and weight of the water acting upon a part whose excitability is accumulated in an excessive degree.

9 Cold is said to increase the frequency of the pulse.

10 Cold air is said to act as an exciting cause of fevers. This it may do, 1 By checking perspiration. 2 By destroying the equilibrium of the system. Fevers are sometimes induced by blood-letting, and fear sometimes occasions convulsions, and yet neither of them are stimuli. The followers of Dr Brown say that fevers are the consequence of heat succeeding to the sedative effects of cold; but this is not the fact; the action of cold is increased by the presence of miasmata.



Some
But
that
same
1
accu
all h
it w
and
H J
the
other
of a
stru
the
reco
of h
the
tite
min
fess
F

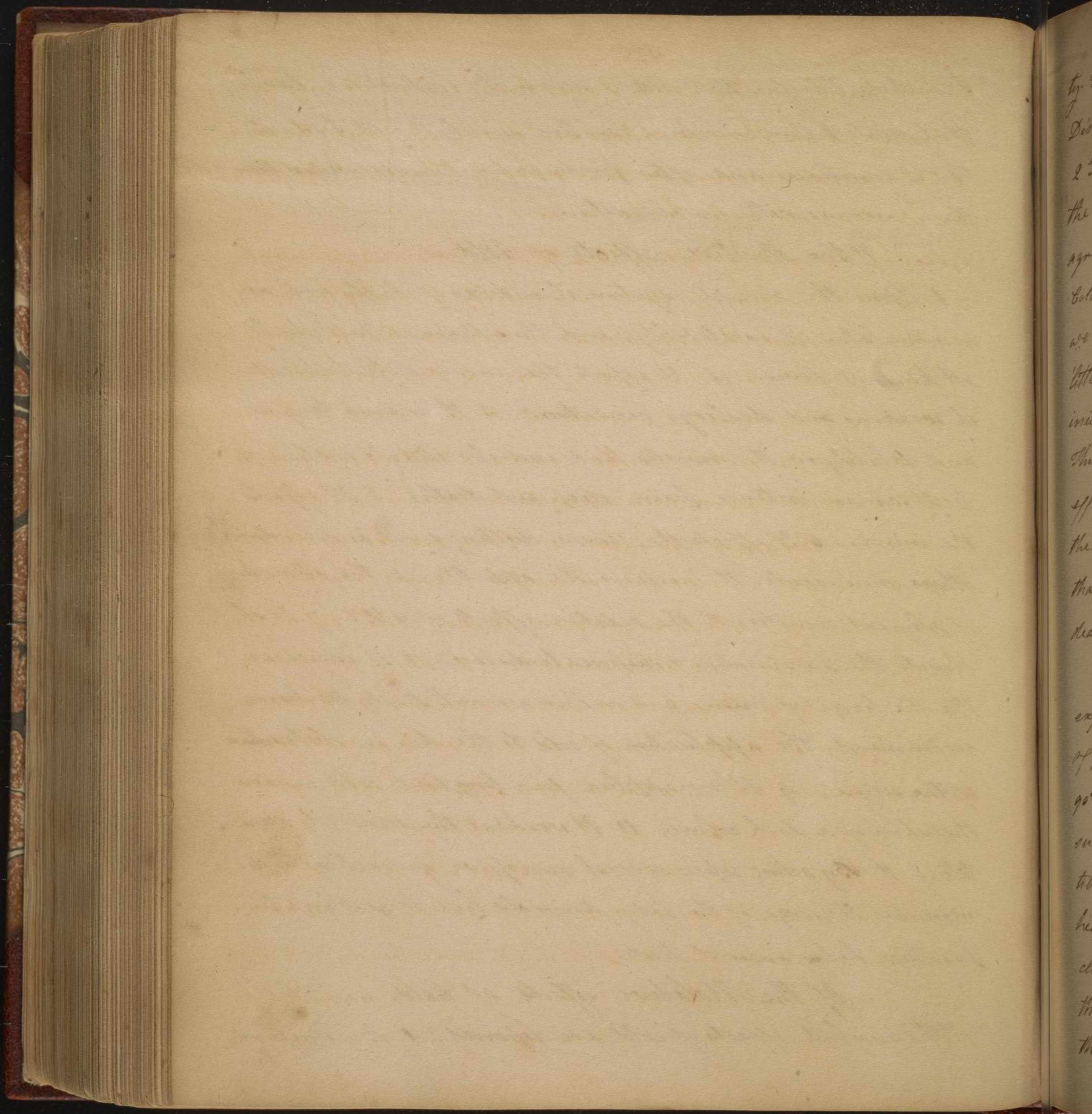
I conclude therefore that cold is merely the abstraction of heat. But while I thus ascribe a negative quality to cold, I admit that it sometimes and often produces positive effects, in the same manner with moral evil.

Of the Positive effects of Cold.

1 Upon the arterial system it induces debility and an accumulation of excitability, and thus disposes the body to all kinds of fever. 2 It affects the nerves with trismus, & it weakens and destroys sensation. 3 It induces languor and debility in the muscles, and indisposition to motion. 4 It causes intense pain, sleep and death. 5 It affects the mind. 6 It affects the senses, dulling some, and rendering others more acute. It increases the appetite, as the stimulus of aliment counteracts the sedative effects of cold. 7 It obstructs the perspiration & disposes to disease. 8 It increases the discharge of urine, and on this account Dr Sydenham recommends the application of cold to the skin in obstructions of the urine. 9 When applied for a long time cold renders the skin of a dark colour. 10 It weakens the venereal appetite. 11 By acting upon several successive generations it diminishes the size of the body. Animals live longest in a temperature below animal heat.

Of the Relative effects of Cold.

The morbid effects of cold are ripened, 1 By uniformity.



ty. The most healthy winter I ever knew was uniformly cold.

Diseases in northern countries are locked up during the winter.

2 They are diminished by time & habit. This is evident from the effects of cold water to the hands & face; at first it is disagreeable but after a continuance of it, it becomes pleasant.

Cold after a long time produces insensibility to itself & to heat;

we therefore find the inhabitants of cold countries to possess

little sensibility to either heat or cold. 3 Its effects are diminished by the natural insensibility of some parts to them.

Thus it is less perceptible to the lungs and to the head. 4 Its

effects are less considerable upon those persons who have

the nervous laxum of the season. 5 They are less on children

than on adults. Thus we hear of mothers having been found

dead in the cold, with their children by them still alive. —

The effects of cold are increased, 1 By a previous

exposure to heat. It acts differently, according to the degree

of previous heat. After having been exposed to a heat of above

90° or 100° we feel no sensation of cold. After the mercury has

suddenly descended below 90° the sensation of cold is perceptible.

The pestilential effects of night air are owing to the

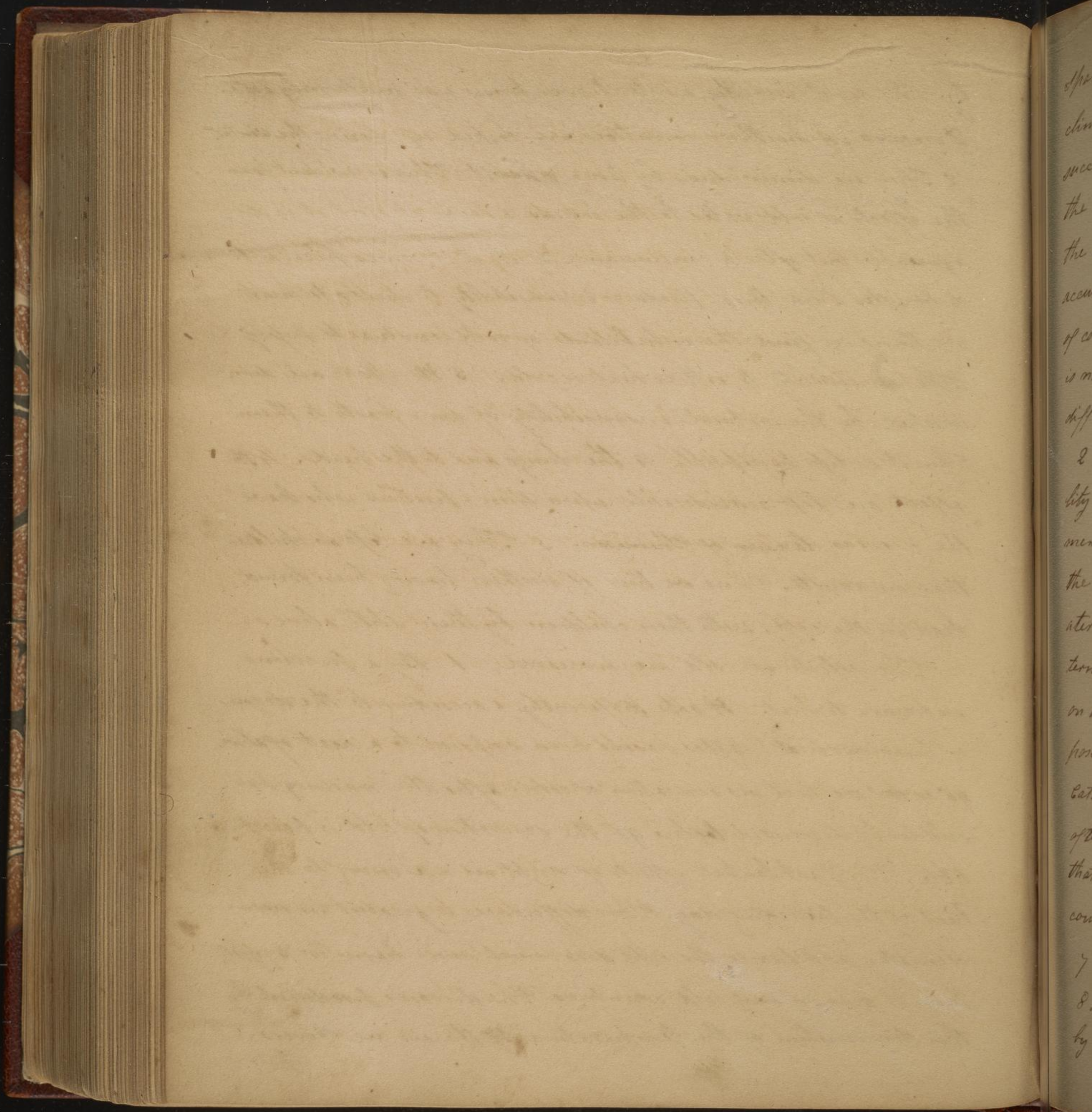
heat of the preceding day. This difference is greatest in warm

climates, and hence the cold does much more harm in Egypt,

than it does in any cold countries. The diseases produced by

this diminution of the temperature of the air are Fevers,

Spasms



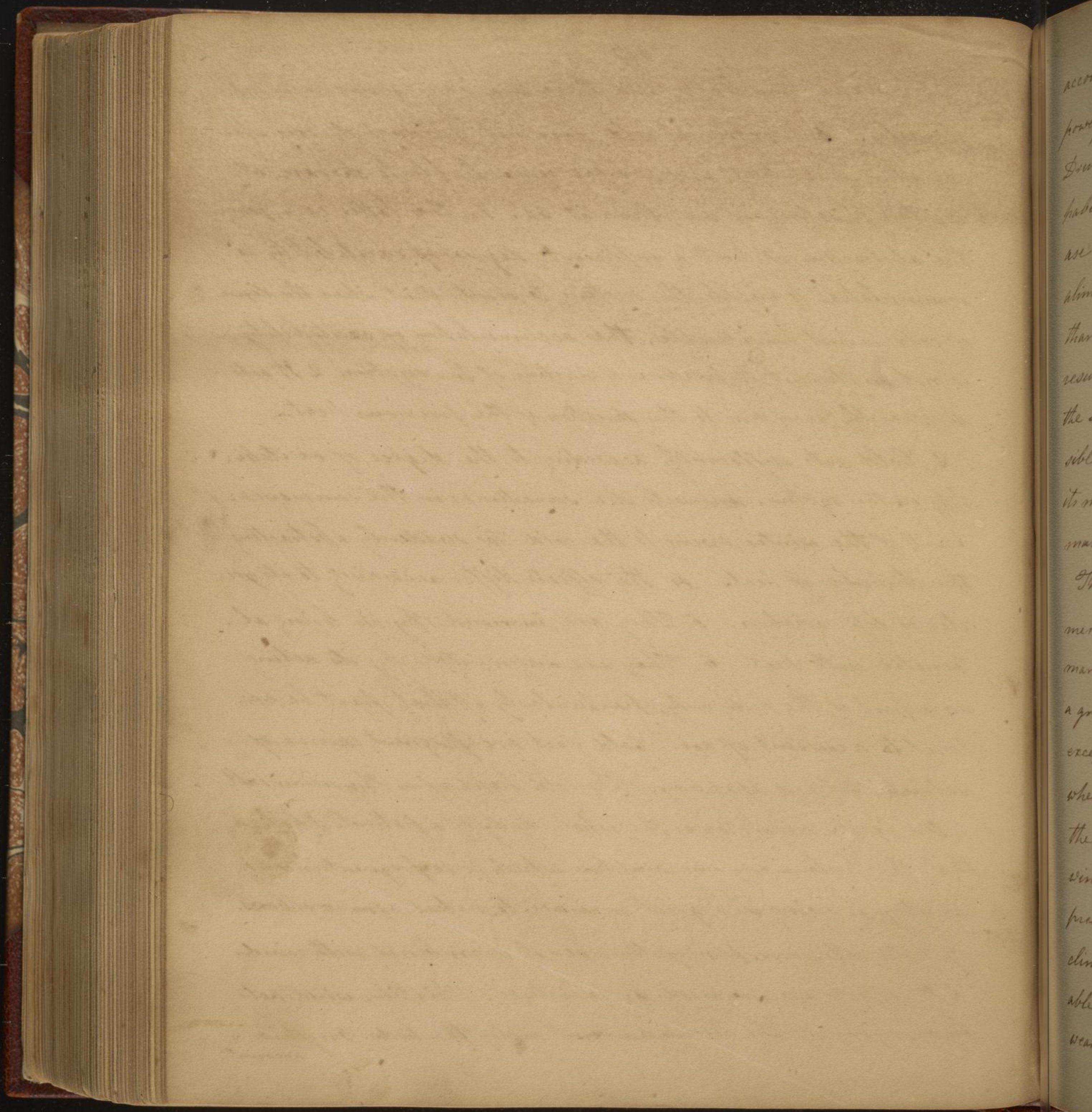
Sp
ch
succ
the
the
acc
of co
is m
diff
2
lity
men
the
iter
tern
on a
finc
Cath
of the
tha
con
7
8
by

Spasms, and Numbness, and these are very common in hot climates. But extreme cold does not produce disease when succeeding great heat, and we are more liable to disease at the temperature of 45° than at 32° . In the latter case, from the abstraction of heat a sufficient degree of excitability is accumulated to enable the system to react. But when the degree of cold is not considerable, the accumulation of excitability is not sufficient to produce a reaction of the system. 2 It acts differently according to the duration of the previous heat.

2 Cold acts differently according to the degree of excitability in the system. Animals die sometimes in the commencement of the winter owing to the cold too suddenly abstracting the stimulus of heat. 4 Its effects differ according to its greater or less variation. 5 They are increased by its being alternated with heat. 6 They are augmented by its acting on a part of the body only, particularly if that part be exposed to a current of air. Cold feet are frequent causes of Catarrh, Colic & Apoplexy. The cold hand of a Physician will often excite rigors over the whole body of a patient. I believe that the pulmonary consumption which is so frequent in our country, is owing in a great measure to naked arms & elbows.

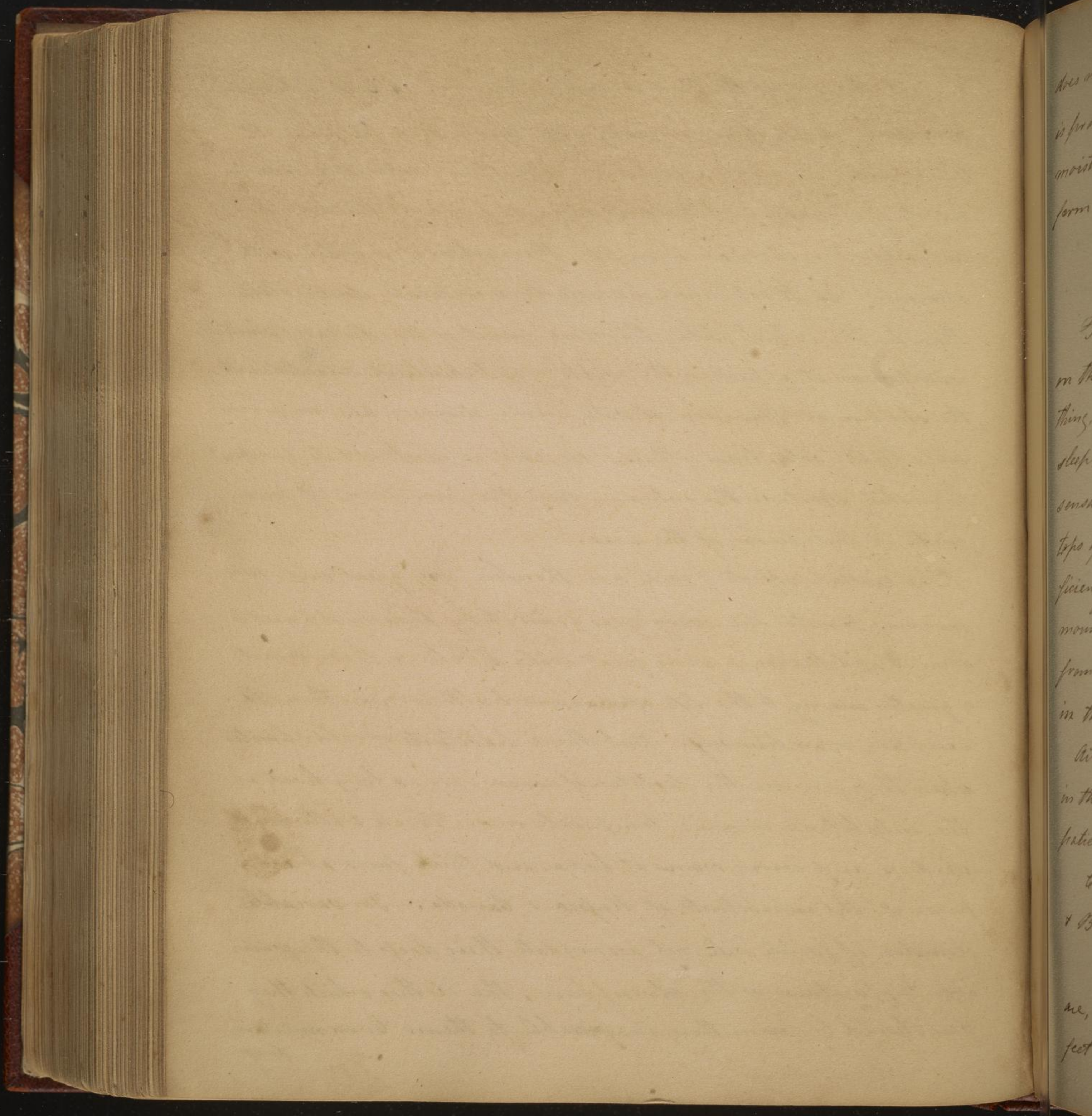
7 Cold acts more powerfully when it is combined with wind.

8 Its effects are increased by moisture. This like wind acts by carrying off the circumambient air of the body. On this account



account the air of Holland is very unhealthy. 9 Cold acts more powerfully on old than on young and middle aged people. 10 Drunkards are more affected by cold than people who live in habits of sobriety. 11 Cold is more disposed to produce disease when the stomach is empty, than when it is filled with aliment. 12 It acts more powerfully & certainly during sleep than in the waking state, therefore most of the diseases which result from it appear in the night. 13 Debilitated Invalids with the stricture of Thymison, or with chronic diseases, are more sensible to the cold than others. 14 Cold is most apt to produce its morbid effects in the autumn, from the prevalence of miasmata at that season of the year.

The morbid effects of cold are therefore very great and numerous. Brutes die every year from it by thousands, and to man it is likewise a very great evil. I believe there is not a greater enemy to the life of man and health of man than cold, excepting man himself. But the inhabitants of cold climates when they pursue the dictates of reason, are as long lived as the inhabitants of more temperate ones. Thick walls, double windows, and warm rooms at home; and thick furs abroad, preserve the inhabitants of Russia & Canada. In variable climates, if people will not accommodate their dress to the variable temperatures of the atmosphere, the clothes which they wear should be warmer than is agreeable to them. Even moisture
does



does not
is for
moist
form

2
in the
thing,
slap

sensu
topo
ficien
moun

from
in the

air
in the
partic

to
+ 13

me,
feet

does not necessarily produce disease. A great deal however, is produced by the habit of wearing too thin clothes. Neither moisture, heat, nor cold induce disease when they are uniform.

Of the effects of preternatural density & rarity of the air upon the body.

The rarified air on mountains produces several effects upon the system, such as great muscular weakness, difficulty of breathing, profuse sweats, quickness of the pulse, sickness at stomach, sleep, aversion to ardent spirits, great pain, redness of the eyes, a sensation of cold & chills. These effects are experienced on the tops of high mountains, and have often been attributed to a deficiency of oxygen. Baron Humboldt who ascended the highest mountains in the world, says that it produced a hemorrhage from his eyes, nose & mouth. By his Eudiometer the oxygen in that situation constituted 18 in 100 parts of the atmosphere.

Air of excessive density renders the circulation of the blood in the lungs difficult, and therefore is injurious to consumptive patients.

Changes take place simultaneously in the Thermometer & Barometer.

The relative effects of rarity & density in the atmosphere, are, 1 Changes in the rarity & density of the atmosphere affect the system in a greater degree when they are sudden.

2nd
mess
to
flood
this to
direct
Ma
by the
that
flood

of the
cold
foot to
even
red
cold
the
certo
chang
by w
sum
bring

2 They affect the body more or less according to the coldness, dryness or moisture of the atmosphere.

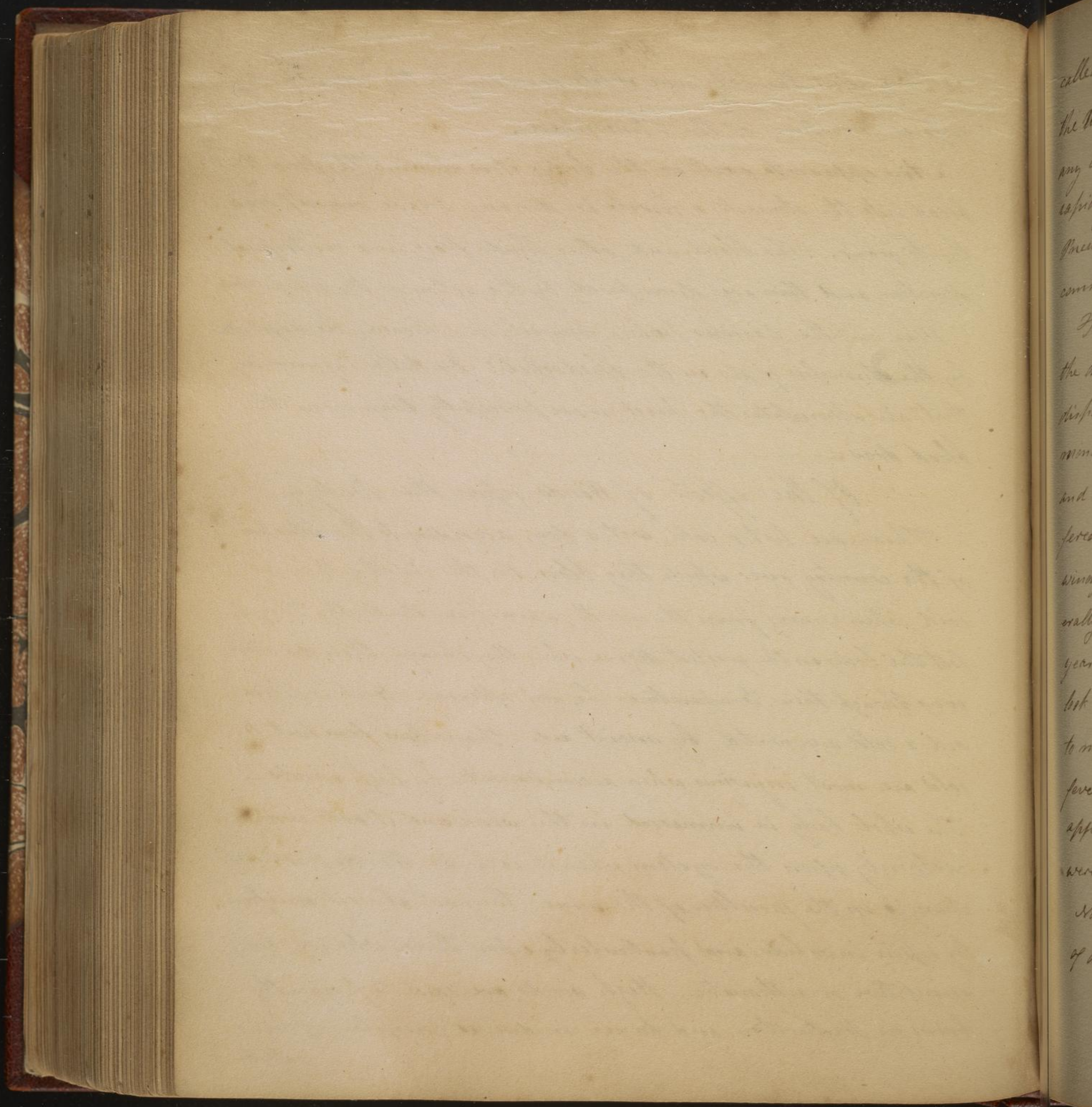
Air appears to exist in the body; it is eliminated from the blood into the stomach & bowels in disease. I have myself seen this to occur. The blood and other fluids flow in a centrifugal direction, and thus are decomposed by the action of the blood vessels.

May not the gaseous pulse formerly mentioned be kept up by the stimulus of air in the blood vessels? Dr Haller informs us that air stimulates the heart more powerfully than even the blood does.

Of the effects of Winds upon the Body.

These are hot & cold, wet & dry, according to the situation of the country over which they blow. In this country they are cold when coming from the north, warm from the south. They affect the body in the greatest degree when they change their direction, even though their temperature be not altered. Heat is decreased & cold augmented by moist air. Transitions from heat to cold are most injurious when accompanied by high winds.

The whole body is immersed in the wind and it acts more certainly upon the system when it is high. Winds produce changes in the faculties of the mind, they act almost uniformly upon invalids, and particularly upon those who are consumptive or asthmatic. High winds are said to frequently bring on parturition, and hence midwives complain of being called



called out so frequently in stormy weathers. The heat and cold in the United States are intense. More rain falls here than in any country in Europe, and the evaporation goes on more rapidly. The diseases produced in the U. States are Angina's, Pneumonies, and Cataracts, the last of which are extremely common.

The wet winds in this country come from the East, and the dry ones from the West. The winds from the sea coast dispose to consumption; and the North West winds in the month of March are drier than any others; they dissolve and carry away the putrid matters which have been suffered to remain in any place; hence the season succeeding a windy march is generally a healthy one. Though it is not generally thought so, yet the month of March is the driest in the year: it is considered as a wet one, because we are too apt to look up for knowledge. An intelligent mechanic once remarked to me, that in those seasons when we were visited by the yellow fever, we had fewer north-west winds than usual, and the appearance of the fever he ascribed to putrid substances, which were suffered to remain in our streets not being evaporated.

Not only Winds, but also the absence of them is productive of disease.

Of the insensible qualities of the Air.

The remote causes of disease from the insensible qualities

Letter 2

has a

card

3 21

gim.

Carbo

prode

napon

coala

ing fr

15 Pa

16 3

of the

n

The

For the

are m

The

with

there

flow,

rain

State

sylva

lities of the air, are 1st Marsh exhalations. Dr. Miller of New York has called them *Koino Miasmata*. 2 Exhalations from the diseased ~~body~~ human body, called by Dr. Miller, *Idiomiasmata* — 3 The matter producing Influenza. 4 The matter of contagion. 5 Phlogiston, or the air discharged in respiration. 6 Carbonic acid gas. 7 Hydrogen Gas. 8 Certain winds which produce death. 9 The air produced by earthquakes. 10 The vapours emitted from certain springs. 11 The vapours from coals. 12 The air of stove rooms. 13 The vapours proceeding from certain manufactories. 14 Certain odours from flowers. 15 Particles of certain metals & earths, and the Pollen of plants. 16 The matter which forms the inflammatory constitution of the atmosphere —

1st Of *Koino Miasmatic* exhalations —

These proceed most commonly from low marshy grounds. For their production the presence of ^{dead} vegetables, heat & moisture are necessary; the Thermometer should stand at about 80°. The sun exhales nothing from grounds that are covered with water; and it only produces noxious exhalations when there is not a sufficient quantity of rain to completely overflow, nor of heat to dry the the surface of the ground. A rainy season ~~xxxxxx~~ is seldom sickly in the lower parts of the State of Delaware, but it is so on the high grounds of Pennsylvania. The former are completely overflowed, while ^{the}

+ Jackson

the latter are merely rendered moist. The exhalations from marshy grounds which have been overflowed by a mixture of salt & fresh water, are more injurious than those which have been overflowed by fresh water alone.

Sometimes heavy rains produce disease by washing off green pellicles from the surface of stagnant waters, which had prevented the sun from acting on them, without which the injurious exhalations could not be produced. Sometimes diseases appear when the marshy ground is dry at the surface, but there is at such times a bed of water at some distance below the surface of the earth. The fissures which are produced by great drouth, allow the exhalations to escape through them. These miasmata may communicate disease to the distance of 9 miles when there is no obstacle to obstruct their progress. They travel with the wind and are most noxious in the morning & evening. They are least so in the middle of the day & of the night. At mid-day they are too high above the surface of the ground, and at midnight they are too near it.

Miasmata may exist for 20 or 30 days⁺ in the system, and sometimes even for months, waiting for an exciting cause to bring them into action. The miasmata which continue floating in the body thro' the winter, sometimes produce sporadic cases of fever in the spring; or perhaps these sporadic cases may

may
only
The
the
of
cool
perth
sibil
clim
occu
the

and
few
atten
aque
on
2
ing
3
he
H
creas

may be owing to a predisposition left by these miasmata, which only acquires exciting causes to induce disease.

The chemical nature of these miasmata is not known; the Eudiometer is not affected by them.

The Noine miasmata act most certainly in moist and cool weather, but are destroyed by ~~excess~~ cold and rainy weather. Habit contributes very much to destroy the sensibility of system to their influence; this is evident in those climates where these miasmata prevail. They even become necessary to the preservation of life, and old people often die soon after removing to more healthy situations.

Of their mode of acting —

In the arterial system they produce 1 The yellow fever, and the first grade of Plague. 2 The Inflammatory Billious fever, and the second grade of Plague. 3 The mild Remittent fever, and the third grade of Plague; these grades of Plague are distinctly described by the French writers. 4 The mild Intermittent, Chronic fever and febricula.

2 In the stomach these miasmata produce sickness & vomiting &c. denominated Gastric states of fever.

3 In the bowels they produce Dysentery, Cholera Morbus, Colic and Diarrhea, which are called intestinal states of fever.

4 In the liver they occasion inflammation, suppuration, an increased secretion of bile, and sometimes obstructions.

[Faint, illegible handwriting on aged paper, likely bleed-through from the reverse side.]

5 In
mizz
cur
jersey
affect
6
7
Con
8
9
Acin
10
and
partly
causes
The
begs
ser, g
green
the
The
bodie
The
frosto

5 In the spleen they induce congestions, enlargement & disorganization of that viscus without any disease. This frequently occurs in the counties of Gloucester & Salem in the state of New Jersey; their action being too feeble to produce disease. These affections are called by the country people, Ague Cakes.

6 In the Kidneys and Lungs, inflammation & obstructions.

7 They act on the muscles, brain, nerves & mind, producing Convulsions, Coma and Insanity.

8 Upon the eyes, producing Ophthalmia.

9 Upon the Lymphatic & Glandular system, producing, producing Dropsy and Glandular swellings.

10 Upon the skin, producing Erysipelas, Carbuncles, Boils and eruptions. The dark colour of the skin of Africans is partly owing to this cause. These miasmata are likewise the causes of many topical affections.

There are also other sources of putrid exhalations, such as Cabbages, Potatoes, Onions, coffee, old Books, the timber of old houses, green wood confined in cellars during the summer months, green timber in new ships, Filge water, stagnant water, the matter contained in gutters, a duck pond, a hog styce &c. They are likewise afforded by animal substances, as human bodies, putrid fish, raw hides, putrid oysters &c.

These miasmata are destroyed by heavy rains, by black frosts, and by a heat sufficient to dry up their sources.

of

[Faint, illegible handwriting across the page]

to
they
the pre
to im
& exte
the li
2 B
tals d
than
3 A
ion of
each
The
tation
matte
from
wash
expos
clothe
2
Amer
weath
the m
as ma

2 Of Idio Miasmatic Exhalations

Or those which proceed from the human body in disease.

They are produced 1 By a want of cleanliness, and allowing the perspirable matter to stagnate on the skin. Linen is said to impart the morbid matter most readily, but is retained longer by it ~~than~~ ^{than} muslin or flannel.

The linen of labourers has sometimes affected their washerwomen.

2 By confinement in a crowded place. The military Hospitals during the American Revolution were far more destructive than the sword, 9000 men must have died of it during that period.

3 A scanty allowance of food, or food of a bad quality. 4 Depression of the mind by fear. 5 From the mixture of strangers with each other. 6 Noisiness long continued.

The disease when thus produced is propagated by the contagion of excretion. They are derived, first, from Perspirable matter, the other excretions also produce disease. The linen from persons in good health has sometimes produced disease in washerwomen. Clothes taken from a diseased person should be exposed to the air for some time before they are put into a clothes bag.

2 They are more active in winter than summer. During the American Revolution, Typhus fevers seldom appeared in warm weather when the windows of the Hospitals could be open. In the military Hospitals of hot climates, fevers from human miasmata seldom appear.

3. H
of
+ stone
when
must
to be
4
spira
them
5
tion of
disca
6
7
8
quar
abey
9
amin
1
Lyp
Nero
rium

3 Human miasmata adhere to apparel, and to the curtains of beds for months; they adhere also to wood & perhaps to brick & stone walls. ~~They~~ They do not however adhere to them when they are whitewashed, nor to ground floors. On this account Count Saxe forbade the ground in his military Hospitals to be covered with wood.

4 Persons highly charged with retained and vitiated perspiration sometimes infect others without becoming diseased themselves.

5 People sometimes affect themselves from an accumulation of their own exhalations, and hence cases of solitary disease.

6 Idio miasmata are assisted by cold.

7 Feeble persons are most liable to be affected by them.

8 Pregnant women & people labouring under abscesses frequently escape, and after parturition ~~and~~ ^{or} the opening of the abscesses they take the fever.

9 Depression of mind by fear assists them. Many other animals beside man produce disease.

Of their effects on the system.

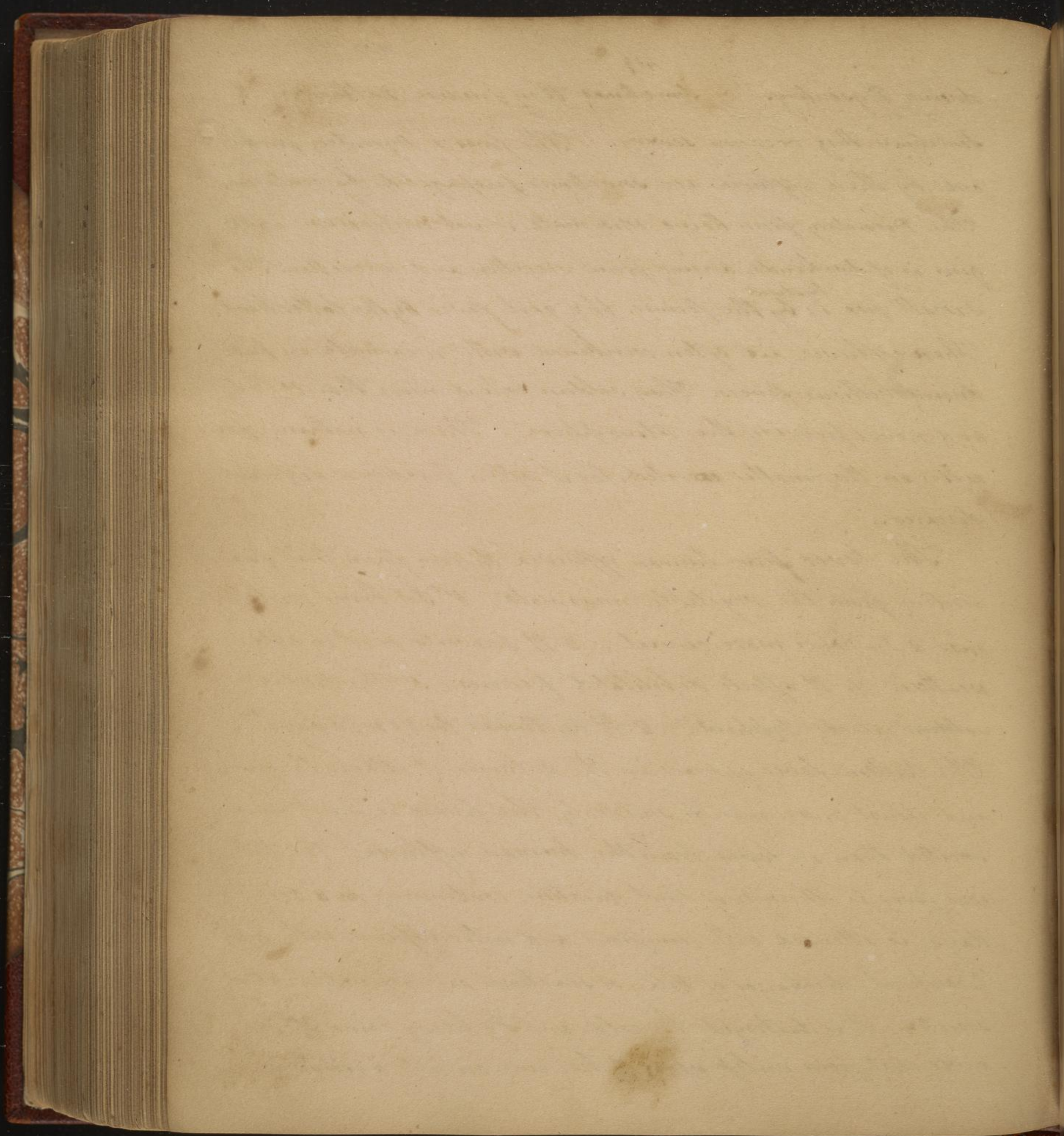
1 They act upon the arterial system producing ~~typhus~~ ^{typhus} & typhus fever. 2 They affect the muscles ^{with} tremors. 3 The nerves with stupor. 4 The brain with head ache & delirium. 5 The glands. 6 The bowels, producing

* It comes on gradually, & the remissions are scarcely perceptible.

during Dysentery. 7 Sometimes they produce Influenza. 8 Sometimes they occasion scurvy. The fever & Dysentery produced by these effluvia are sometimes propagated by contagion. The Dysentery from Kaino miasmata is not contagious. Contagion is of two kinds, arising from secretion and excretion. The small pox is ^{produced} by the former, the jail fever by the latter kind. These effluvia are often combined with miasmata in producing bilious fevers. They seldom extend more than 10 feet, and never pervade the Atmosphere. There is nothing specific in the matter excreted, for it often produces different diseases.

The fever from human effluvia differs from that proceeding from the vegetable miasmata. 1st In being contagious. 2 In being more general. 3 It prevails most in cold weather. 4 It affects debilitated persons. 5 The pulse seldom exceeds Typhoid. 6 It continues for 20 or 30 days. ⁺

The Bilious fever appears in the Autumn, it attacks the young and robust and comes on suddenly; the pulse is much more excited than in fever from the human effluvia. The Bilious fever is likewise of short duration, continuing for 3, 5 or 7 days, is attended with remissions and intermissions, with preternatural discharges of bile, or sometimes an obstruction of that secretion; it is destroyed by cold and by heavy rains; it is never contagious unless when it has run on into a chronic form, and



and
M
the
m
mat
The
duces
ed in
ity w
remain
month
weeks
from
been
with a
Exa
ing-co
aid of
miss
cours
the ca

and the human effluvia is produced.

No climate, I formerly remarked, is necessarily unhealthy. The same may be said of countries which are subject to miasmatic exhalations. If these could be abolished, the miasmatic fevers would be blotted from the list of diseases.

3 of the Matter of Influenza.

The most insensible source of disease is the matter which produces Influenza. The remote cause of this I believe to be seated in the atmosphere, and not contagious, 1st From the rapidity with which it spreads through countries. The small pox will remain in this city for three years, and the measles for twelve months, while the influenza & bilious fever pass off in six weeks. 2 Because it has never been traced to any one spot from which it originated. 3 Many families & individuals have been affected with it without having had any communication with an affected person.

4 Of those matters which are secreted in the human body, and which are called specific contagions.

Examples of this we see in the small pox, measles, whooping-cough & chicken pox, ^{and possibly scarlatina & Cynanche maligna.} These produce themselves without the aid of an exciting cause, in which respect they differ from miasmata; and they produce disease but once during the course of a persons life, with a few exceptions, which is not the case with miasmata.

Some

some
these
distance
in this
seem to
nominal
matter
6
from
Pers
with 7
induce
6
and as
acid
have i
vity is
ently
7
ces de
8
count
9
to an

Some diseases are propagated by contact only, as the venereal disease and the itch. others affect the atmosphere for a small distance round the diseased persons, and may be communicated in this way, as is the case with the small pox &c. The former seem to induce disease by means of a fixed matter and are denominated infectious. The latter act by means of a volatile matter, and have received the appellation of contagious diseases.

5 The next source of disease is the Air discharged from the Lungs in respiration.

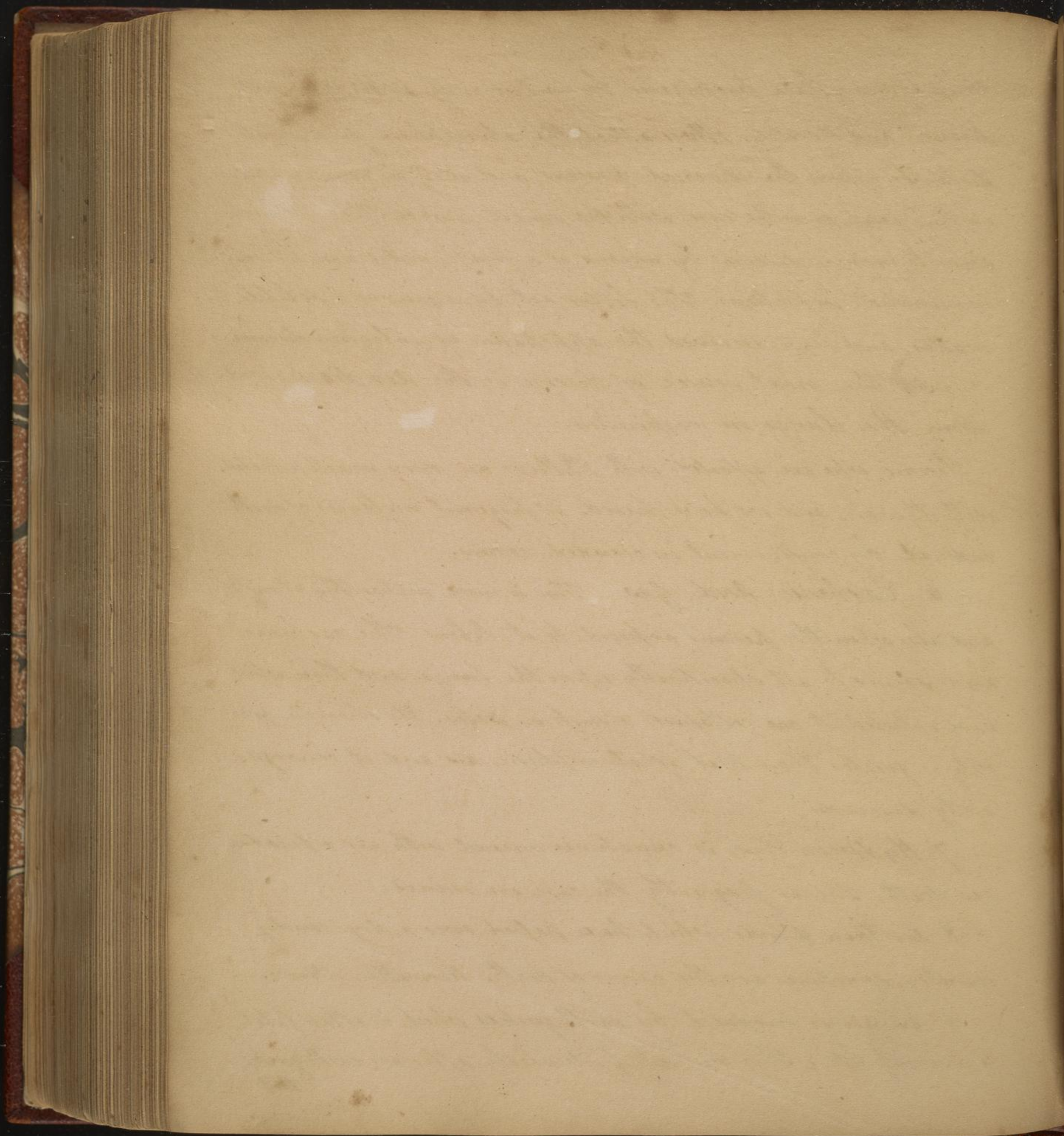
Persons who are affected with Phthisis are very much affected with this air; and we have heard of frequent instances of death induced by confinement in crowded rooms.

6 Carbonic Acid Gas. This is more unhealthy at night, and also when the persons exposed to it labour. The carbonic acid seems to act specifically upon the lungs, and those which have inhaled it are collapsed & sink in water. Its specific gravity is greater than that of atmospheric air and it consequently descends.

7 Hydrogen Gas, is sometimes mixed with air & produces death. This is frequently the case in mines.

8 Certain Winds which have passed over a dry, sandy country, sometimes are the causes of death. Harmattan Winds.

9 An air is produced by earthquakes which is often fatal to animal life. This occurred particularly after an earthquake that



that
per
11
over
cont
with in
11
tamin
12
plus
13
in
air of
ingly
a vep
14
partic
15
inita
16
17
18
19
smoke

that took place in Jamaica 17 June 1792 which destroyed many persons.

10 The air of ^{certain} Mines is unfriendly to life. If birds fly over the lead mines in Scotland on those days when they are worked, they are destroyed; but on Sundays they may pass them with impunity.

11 A vapour is said to be emitted by some springs which contaminates the air.

12 An air producing death is emitted by coal, probably Sulphur in a gaseous form.

13 An Atmosphere unfriendly to life is produced by stoves in which are burned either wood or coal. This quality of the air of stove rooms is ascribed to its extreme dryness, & accordingly its noxious qualities are corrected by placing on the stove a vessel of water.

14 The effluvia from certain manufactories affects the air, particularly from those in which Lead, Arsenic &c are worked.

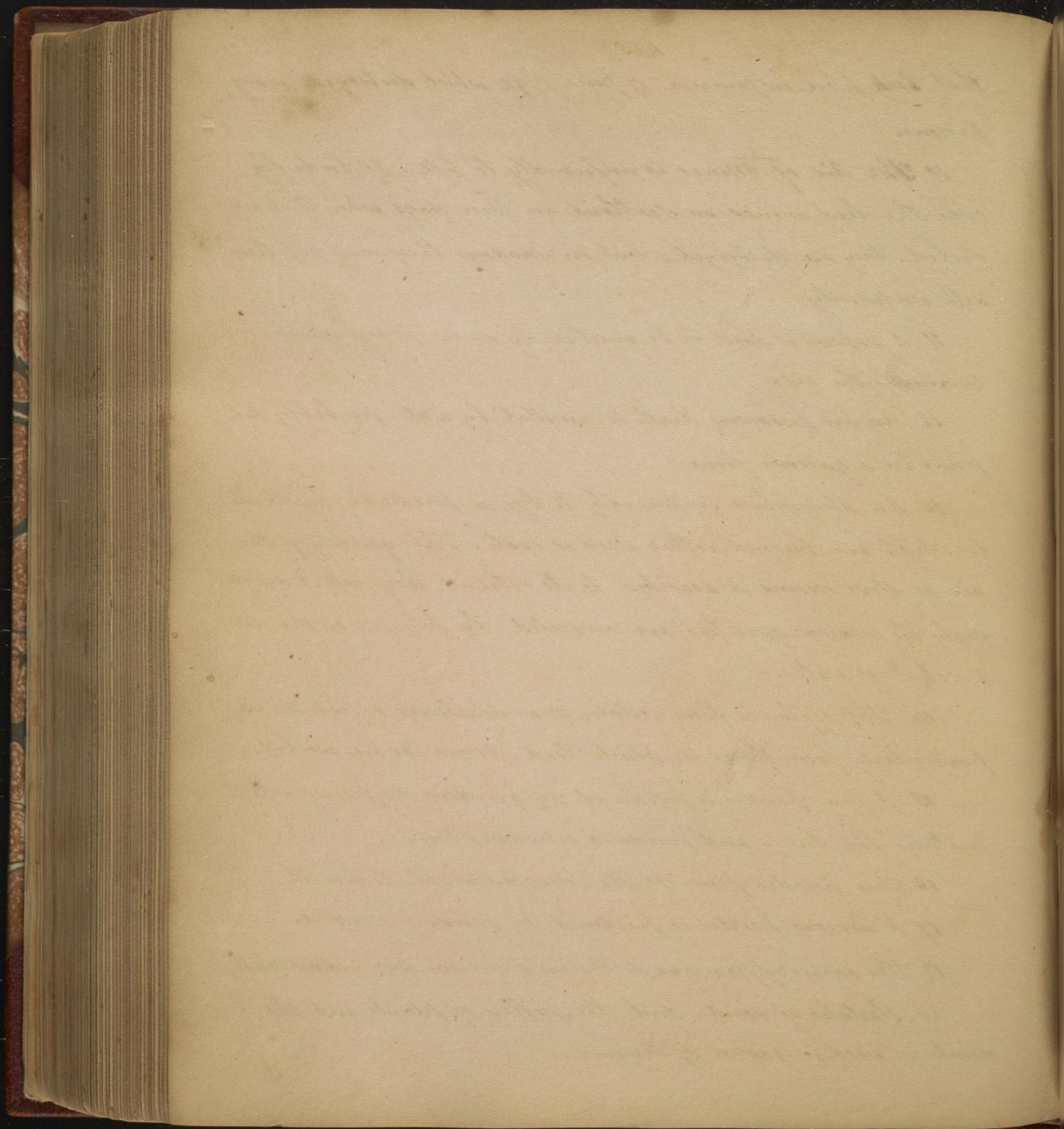
15 A fine powder is produced by grinding Gypsum, which irritates the lungs and produces consumption.

16 The powder from Mills is unfavourable to health.

17 A noxious powder is produced by grinding Needles.

18 The odours of flowers are deleterious, and have even induced death.

19 Particles of sand, dust, the pollen of plants, and the smoke of wood, occasion ophthalmia.



I find
with
the ca
regate
ed fac
from
offic
unreph
the con
not ce
vid
induc
If
by the
in. in
the b
of
2 By
it im
the la
ous a
been
the p
not y

I formerly supposed that the air was sometimes ~~superoxygenated~~ with ~~oxygen~~ superoxygenated, but this is now found not to be the case; but that some sources exist from which the air is impregnated with a matter unfriendly to animal life is an undoubted fact. Dr Sydenham supposed that this matter was exhaled from the earth. Is it a modification of the electric fluid?

This opinion of the source of disease being situated in the atmosphere does not prevent man from escaping its attacks. On the contrary it teaches him the important lesson, that if he cannot remove the source of these noxious exhalations, he may avoid the exciting causes, and without these disease will not be induced.

It appears therefore that many of our diseases are induced by the insensible qualities of the air. I now proceed to enquire in what manner these deleterious substances enter into the body.

They have been supposed to do this first from the lungs.
 2 By the nerves. 3 By means of the saliva, being carried with it into the stomach. 4 By the absorbents in the skin. I reject the last supposition, not only from the non existence of cutaneous absorbents, but from the ineffectual attempts which have been made to propagate the small pox in this way. I doubt the propriety of the third supposition. I believe that miasmata act upon the body by means of the nerves and brain. We find

find
of
than
the
have
can
trile
impro
the sto
nerves
justice
they
the on
disca
Co
at
produ
ies, pr
desola
of Ep
exha
house
also ac
ties of

find pain to be one of the first symptoms of their application
operation. The brain is more affected by fevers from miasmata
than by those from local irritating causes, such as wounds &c.
The brain too is intimately connected with the lining mem-
brane of the nose. Sparrows which live but twelve seconds
in carbonic acid gas, will live three minutes if their nos-
trils be closed. These remarks are of great practical
~~importance~~ application. They lead us, if diseases act first on
the stomach to the early use of emetics. If we believe the
nerves to be the channels by which they enter the body, and
particularly those terminating on the Schneiderian membrane,
they will induce us to close our nostrils & breathe through
the mouth when we are exposed to the remote causes of
disease.

Contagious diseases appear to make their attacks singly,
or at most only in small scouting parties, but those that are
produced by the Koino Miasmata come like immense arm-
ies, pervading whole tracts of country, and spreading terror &
desolation wherever they appear. I exclude from the list
of Epidemics those fevers which are induced by human
exhalations. They never extend beyond the limits of the
House, jail or Hospital where they originate. I exclude
also all those diseases which arise from the sensible quali-
ties of the air, from bad water &c.

Epidemics arise from foreign matters in the atmosphere,
bad provisions, and bad water.

Of Epidemics and their Laws ~

I shall in the first place speak of the causes which affect them.

1 They are influenced by the sensible qualities of the air, that is by heat, coldness, density, rarity, dryness & moisture. This is evident in the small pox & measles, as well as in the yellow fever & scarlatina. So this law there are however some exceptions, as the Influenza appears with nearly the same phenomena at all times.

2 Epidemics are affected in their violence, and in their tendency to any particular parts, by the diet & drinks of the season in which they appear; thus in those seasons when fruit is much used the disease is apt to be thrown upon the intestines.

3 No two Epidemics of unequal force can affect the blood vessels at the same time. I would as soon believe that a horse could at the same instant both trot & pace. The contagion of the small pox cannot prevail in the system at the same time with that of another disease.

4 Where two or three Epidemics appear at the same time and place, some one predominates over the others, & blends its symptoms with theirs. In one of the yellow fever seasons, patients with the small pox frequently had the black vomit or black stools. There seems to be a kind of
monarchy.

meas
hels
livery
suffic
times
cord.
demic
some
m/par
and T
fruit
dents
vial
gentle
then
being
surges
this
was ce
to cur
In the
city
to Gen
Ly.

monarchy among epidemics, so that the prevailing one compels the rest to pay tribute or homage to it, by wearing its livery, or by exhibiting some of its symptoms, when it is not sufficiently powerful to entirely prevent them. But sometimes it even extends still further. In one case which is on record, wounds inflicted in battle induced the reigning epidemic. The yellow fever in this city has always produced some of its symptoms in almost all the diseases which accompanied it. This idea was familiar to me a long time ago, and the application of it to practice formerly served as a fruitful source of ridicule. But the circumstance of accidents inducing the reigning epidemic is mentioned by several authors. In the year 1793 I was called to see a young gentleman in this city who had broken his leg; as I had then declined the practice of surgery, and the yellow fever being at that time epidemic, I advised him to send for a surgeon, and in the mean time to get bled & take a purge. This created much noise in the city, some saying that I was certainly deranged, what! said they, bleed & purge a man to cure a broken leg!

In the year 1798 while a yellow fever prevailed in this city a young gentleman sought safety in flight; on his way to Germantown his horse threw him and fractured his leg. The wounds excited into action the insect miasmata
which

which
a part
of
vaccines
of the
morely
the
nic
5
from
since
out a
firm
and in
tendency
forced
tyranny
The
that
but a
who
are
habits
ducin

which had entered his system while in the city, and he died a few days afterward with all the symptoms of yellow fever.

To this law of epidemics there is however now & then an exception. This has occurred in London from the great size of that city, and from the action of the miasmata being — merely local, and extending to but a small distance —

The reigning epidemic sometimes imposes its livery on chronic diseases —

5 The more powerful epidemic not only exacts homage from the weaker, but sometimes even chases them from its presence. Dr Sydenham tells us that the Plague in London drove out all other diseases. But the Plague is often expelled from Constantinople by the appearance of the small pox; and in this city the scarlatina has given place to the Influenza. Epidemics of great force are therefore sometimes forced to yield to those which are naturally weaker. The tyranny of the former abates sometimes before their departure. The first appearance of an epidemic may be compared to that of savages which attack & destroy men, women and children; but when it is retiring it resembles a band of civilized men, who spare the lives of the innocent, and attack men only who are bearing arms. I account for this by one of the laws of habit; the system becomes accustomed to the miasmata producing the epidemic, and yields to other ~~& yields to other~~ & more

6 Epidemics are not uniform in their symptoms
in different years; this he considers as a
sign rather than a law.

more novel impressions.

4 Epidemics appear in many different forms, varieties and times.

1 In different degrees of force, as the Malignant, Billious, Remittent, Intermittent, Inflammatory fevers &c. These different grades in the same epidemic generally appear in years remote from each other, but sometimes in successive years.

2 The same epidemics and of the same force are often attended with different symptoms in ~~the~~ different years, and the same symptoms indicate a different prognosis. This you will perceive in reading my account of the yellow fever as it appeared in the different years in this city. Epidemics with apparently the same symptoms are attended with different degrees of mortality in different years.

3 The same epidemics and from the same causes, affect different parts of the body in different persons, and in different years, and by nosologists are named differently according to the parts which they affect. In some cases the same fever appears always with the same symptoms, and the same local affections in the same year. The more general the epidemic the more uniform are its symptoms. This was observed by Dr Sydenham, and was the case with the breakbone fever which prevailed in this city in the year 1780. This is also the case with the influenza which is nearly the same at all times.

4 Ep
pesc
able to
Epide
mills
type
6 Ep
versal
constr
win, a
7 Ep
of the
8 Ep
and an
9 Ep
appea
and
10
11
then
the acc
12
an ex
13

4 Epidemics sometimes affect whole communities without any perceptible existing cause; but our patients are almost always able to specify the cause which excited the disease into action. —

5 Epidemics generally come on with great force and retire in a mild form, or vice versa. Sometimes they change their type daily or in different parts of the same day.

6 Epidemics sometimes appear with great force, spreading universal terror & desolation, and then suddenly disappear. They are sometimes thus rapidly dispelled by a frost or a heavy shower of rain, which washes away the sources of disease. —

7 The same epidemic is frequently different, in different parts of the same country. —

8 They sometimes appear in one part of a city or town only, and are then justly to be ascribed to local causes.

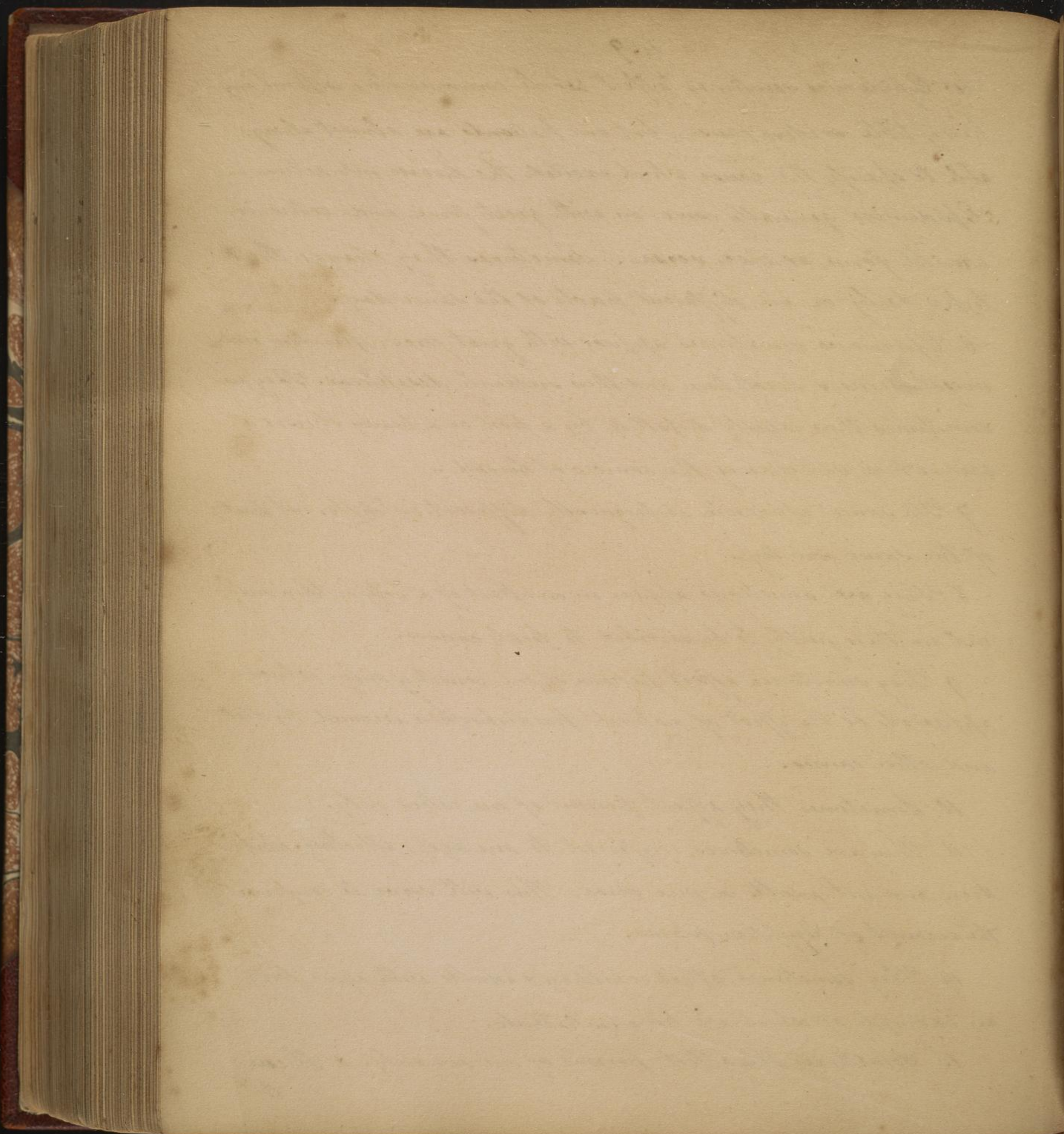
9 They sometimes affect persons of one country only, which appears to be the effect of natural predisposition induced by diet and other causes.

10 Sometimes they affect persons of one colour only.

11 They are sometimes confined to one age, affecting children and not adults or vice versa. This will serve to confirm the account of Egyptian plagues.

12 They sometimes attack children & adults with equal force, an example of which we have in Gattank.

13 Sometimes they affect persons of one sex only. A Plague that



that one
some
14
of the
city
15
of the
tance
16
ranks
17
times
etc. h
of
proper
of one
ver of
follow
epider
me as
Epi
change
Disce

that once appeared in Italy carried off 6000 Men, and hardly one woman.

14 Sometimes they affect persons of only a certain rank in life. In France a fever in the year 1757 attacked only the rich, while in the subsequent year it was confined to the poor class of society.

15 They sometimes affect persons of the same community, or of the same family only, though they be at a considerable distance from each other.

16 Epidemics sometimes affect persons of all ages, all colours, ranks, sexes & nations; this is generally the case with Plague.

17 They sometimes affect the human species alone, and sometimes only one species of quadrupeds, sometimes they attack fish, cats, horses, cows, dogs, sheep & others of the brute creation.

You see therefore that no set of remedies can be uniformly proper for the epidemics of different years. The Epidemic of one season must be treated with the same remedies, however it may assume different forms. This mode of practice was followed by Dr Sydenham with great success. I do not find that epidemics succeed each other with any regularity; but that they are as variable as hail, rain & storms.

Epidemics and Endemics seem to annihilate each other, or to change each others forms.

Diseases often assume different forms from improper treatment.

of the
want
1
was
2
with
3
of this
change
4
in
5
not to
disapp
some
6
and
7
people
or
cause
Come
valen
their

The following phenomena accompany and precede malignant fevers.

1 The weather is unusually hot and dry, wet or tempestuous.

2 Winds blow from unusual quarters, or are accompanied with uncommon quantities of rain.

3 The air is often unusually calm before a pestilence, of this there are many examples. White paint is sometimes changed to a dark colour.

4 The diseases which precede and follow them, assume an inflammatory character.

5 Fatal diseases appear among cats. Sometimes birds are not to be seen before epidemics. The common house fly has disappeared from our city previous to the yellow fever; while some insects have increased as mosquitoes & the

6 Trees Many trees emit a peculiar odour or drop their leaves and die, or sometimes their fruits are small & knotty.

7 During the prevalence of an epidemic the pulses of people in apparent health are preternaturally slow, quick or frequent &c. at the same time people complain of headache, nausea &c. and many are cured of chronic diseases.

Women are said to be more apt to miscarry during their prevalence. Oysters & fish live a much shorter time during their continuance.

Whence

When
that
with
it for
recent
min
halation
atmos
count
the de
into th
has on
since
of Me
every
quanti
of
of my
all th
imita
ton. a
It is

Whence these changes in the air be? Is it to give us notice that a ship has sailed from some unhealthy port armed with contagion; her bad coffee & logwood besmeared with it, for the purpose of destroying the inhabitants of some innocent city? Reason not only objects but loathes the absurd insinuation, and derives all phenomena from domestic exhalations accompanied by an inflammatory constitution of the atmosphere. These states of the atmosphere travel over the country and require the aid of an exciting cause to produce ~~the~~ disease. Sometimes it changes the bilious yellow fever into the Plague, but such a constitution of the atmosphere has not appeared in the United States.

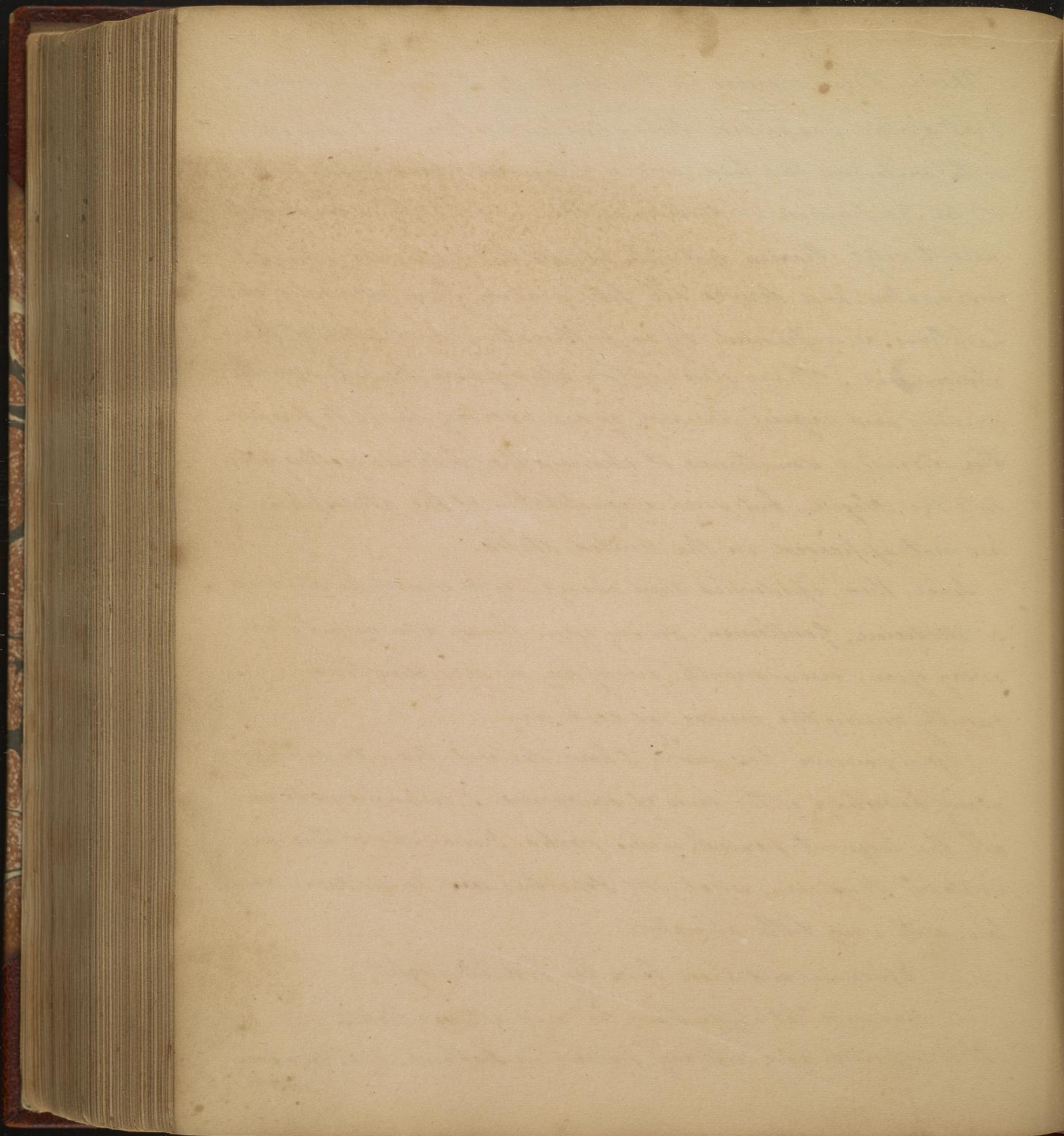
Since then epidemics thus change, you must be students of Medicine, Gentlemen, during your lives; you must study every year, every month, every day or according to some, frequently during the course of each day.

You perceive how much I have derived from Dr Sydenham of my knowledge of the laws of epidemics. I recommend to you all the frequent perusal of his works. I may say of this inevitable Physician, what Mr Pope has said of Sir Isaac Newton, with very little alteration.

Epidemics and their laws lay hid in night.

God said "Let Sydenham be" and all was light.

It is reported of a literary person in Scotland, that he never
would



would
it a
night
secret
and

the
1
tion a
says
ties
clear
with
while
the
When
time
beco
The
mitt
2
and
miser
coun

would never consent to be introduced to a young man of whom it was not previously said, that he had read and admired the night thoughts of Dr. Young. I should inquire in order to ascertain the knowledge of a young man, "Has he not only read and admired Dr. Sydenham, but is he master of his works?"

Of the influence of Situations upon health & life.

These are very much diversified by several circumstances.

1 A country is more or less favourable to health in proportion as it is more or less cultivated. It is not exposed to the rays of the sun when it is entirely uncultivated. On the frontiers of our country death is very rare, but the first act of clearing it is the signal for its becoming unhealthy. The woodcutters of the swamps of Delaware & Carolina enjoy good health while the trees are standing, but when they are cut down, and the sun begins to exert its influence, health abandons them. Where a partial state of improvement continues for a long time, so long the country continues to be unhealthy; but it becomes again healthy as soon as it is completely cultivated.

The diseases produced are chiefly inflammatory, bilious remitting, & intermitting fevers and Dysentery.

2 Towns and cities are the jails & graves of the human species, and have in every age been the hot beds of vice, disease and misery. Hence Cowper says man made the town, and God the country. I am however to take notice of the unhealthiness of the

[Faint, illegible handwriting on a blank page]

the ad
the
which
more
is also
will
more
cities
It is
inhab
about
his be
of age
Dyond
count
and co
thor
affec
entery
the vis
3
coun
+ eff
4

the atmosphere arising from exhalations from various sources. The diet is also less healthy in ~~the~~ cities, from the vegetables which are raised in their neighbourhood being forced by manure, and the flesh of animals which feed upon them is also less wholesome. A head of Cabbage raised near a city will produce sickness in some persons, while one brought from a more remote situation will be perfectly innocent. The water of cities is less pure than that of the country, owing to privies &c. It is therefore calculated that in large towns about $\frac{1}{4}$ of the inhabitants die every year, while the proportion in villages is about $\frac{1}{50}$. Dr. Price is of opinion that a man loses a portion of his health and life by settling in London before he is 30 years of age. The diseases of cities are chiefly of the bilious kind. Dysenteries appear much less frequently in them than in the country, owing probably to the much more common use of tea and coffee in the former than in the latter. The intestines of those who live chiefly on milk & fruits are very liable to be affected by disease. While I was a student at Princeton, a Dysentery prevailed in the college, but not a single student from the cities of New York or Philadelphia were affected with it.

3 The qualities of the air are influenced by some other circumstances, as by the soil of a country. A sandy soil retains & reflects heat and induces the diseases of hot weather.

4 Mountainous situations are more healthy than low or level

level
there
East
but
which
these
between
5
this
around
the
will
6
health
7
wordy
8
the
was
which
than
of the
a
to be

level grounds, particularly when they are covered with evergreens. There are however two exceptions to this rule. A mountain in the East Indies, and another in St Domingo are both unhealthy; but this is owing to their arresting and retaining the exhalations which arise from the valleys or low grounds. The passage of these miasmata may be arrested by a clump of trees planted between their source and the city which it is wished to protect.

5 Fevers follow the damming up of streams for mill ponds. This effect however may be prevented by planting trees around them, which when they are very near will prevent the action of the sun upon the pond; and when at a distance will stop the progress of the miasmata.

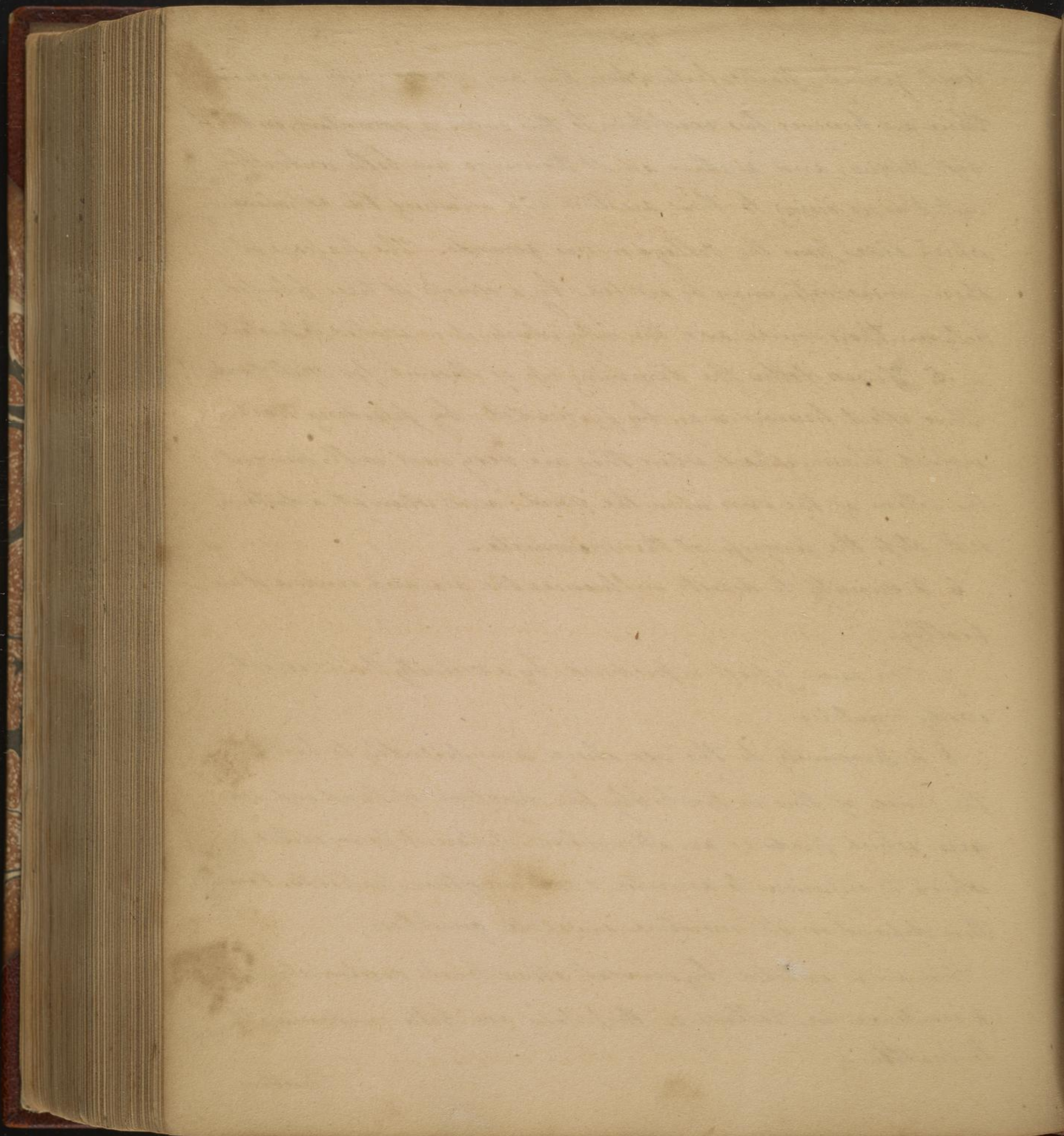
6 A vicinity to deserts influences the air and renders it unhealthy.

7 The same effect is produced by a vicinity to cities, or to woody countries.

8 A proximity to the sea shore is unfriendly to health, the cause of this is probably the mixture of land and sea airs, which produces an atmosphere different from either, & which is injurious to asthmatic & consumptive patients. Does this depend on its moisture or saline qualities?

The air is affected by several other local circumstances. A residence in cellars or Hospitals are both unfavourable to health.

Dwelling



Jack
you
will so
obviate
it for
used w
2 Ho
by day
3 Ho
from p
4 Ho
5
may d
the do
Celtic
ing an
6 Ho
and
7
the do
enks
8
naps in
has low

Dwelling houses are sources of disease. 1 From being formed of green wood, which contains saccharine matter: this by fermenting will render the house unhealthy, but the inconvenience may be obviated or prevented by soaking the wood in water before using it for building, for by this means the sap will be removed and the wood will soon dry -

2 Houses are rendered unhealthy by being built of stone newly dug from the earth.

3 When they are too soon inhabited, by the moisture or vapours from the paper or plaister.

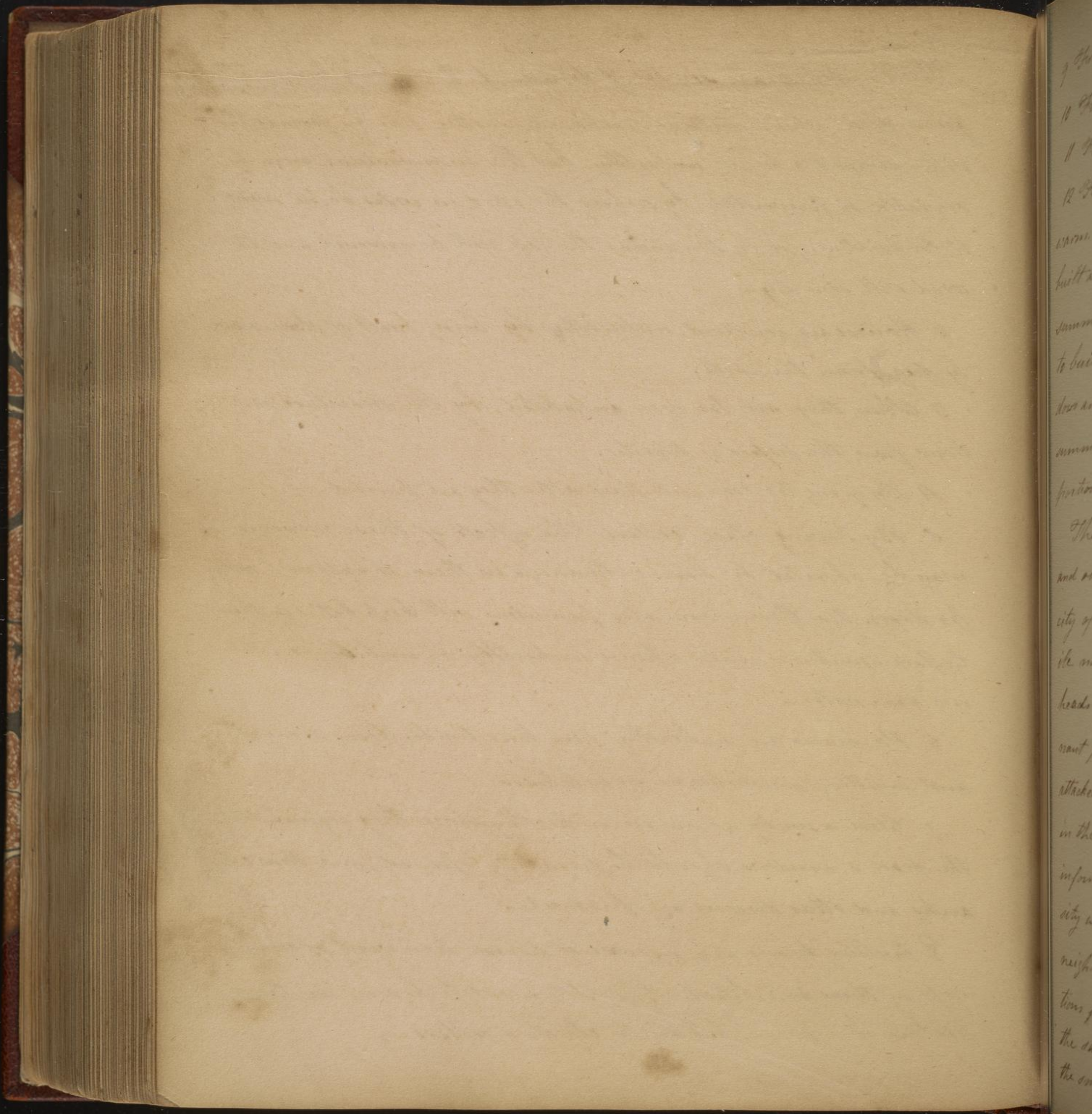
4 By going too soon into them after they are painted.

5 By having close cellars. The effects of these however may be obviated by having chimneys in them, or external cellar doors. By these means also provisions will keep better in them. Cellars sometimes render a house unhealthy by imbibing & retaining rain water -

6 Old houses are unhealthy from their timber being decayed and emitting unwholesome exhalations -

7 Close & smoky rooms are unhealthy since they require that the doors & windows should be frequently opened, and thus catarrhs and other diseases are produced.

8 Dwelling houses are a source of disease from want of cleanliness in their inhabitants. The filth is not to be seen in the parlours of a house, but in its closets & cellars -



9 From sinks & privies improperly constructed.

10 From unwholesome water.

11 From being surrounded by too many trees.

12 From being so constructed as to be either too cold or too warm. A house in the U States should front the south, and be built as low as possible. Houses of this construction are coolest in summer & warmest in winter. We are apt in this country to build our houses with too many windows. The fewer windows and doors there are in a house the cooler it will be in summer, and the warmer in winter. A room is cool in proportion to its size.

These observations are interesting to the lives of our patients and our own reputation. I have known two instances in this city of malignant fevers proving fatal in certain houses, while none of the neighbours were affected. I also knew nine heads of families to die on one side of a street of a malignant fever, while not one of those on the opposite side were attacked. These cases proceed probably from some impurity in the cellars, or from some other local cause. Van Swieten informs us that the whole of the students of a certain University were affected with a disease from which every one else in the neighbourhood escaped. This arose from some noxious exhalations from privies, or cellars; or from some other local cause of the same kind. Diarrhoeas are very often induced by exposure to the smell of a privy.

1st
to contain
place
2nd
most ac
ceived
their co
presum
3rd
afterwa
discus
4th
come m
produc
5th
counte
because
to whic
suppo
6th
fectio
to the

Of the effects of a change of situation upon health.

1 People who migrate from one country to another are very apt to contract disease, particularly fevers; and this more commonly takes place in moving from a cold to a hot climate.

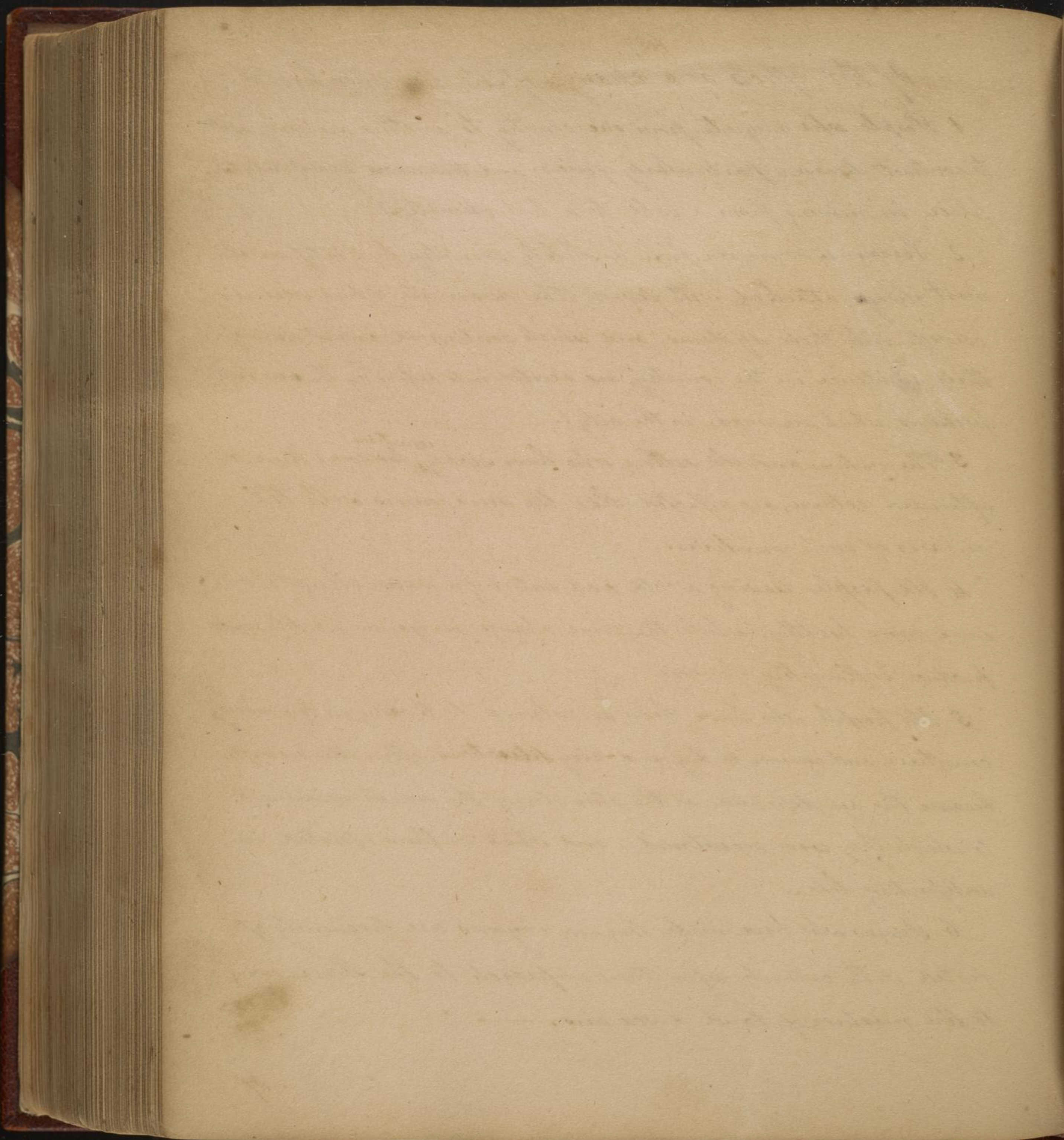
2 Persons who move from a sickly country to a city, are almost always attacked with fevers. The miasmata which were received into their systems, and which continued inert during their residence in the country, are excited into action by the new impressions which are made in the city.

3 The natives and old settlers who leave sickly ^{countries} for some time, & afterward return, are affected like the new comers with the diseases of such countries.

4 Old people leaving a cold and entering a warm climate, become more healthy; while the same change in young people would produce inflammatory fevers.

5 Old people who have been accustomed to living in low marshy countries, and remove to dry and airy situations, often die soon after, because they are deprived of the stimulus of the marsh miasmata to which they were accustomed, and which in them assisted in supporting life.

6 Persons who have made long sea voyages are frequently affected with catarrh upon their approach to the shore, owing to the mixture of land & sea air. —



of
once
the
once
system
let
man
except
in
temper
affection
influence
abandon
and
the
time
dread
tinct
Disease
it is a
may
light

Of the effects of light and sound, and the influence of the heavenly bodies upon health & life.

There has existed in all ages a science called astrology, the votaries of which have ascribed great effects to the influence of the Planets. Their opinions however are an extension of truth into error; for a considerable effect is produced on the system by the sun, the moon, and this earth.

We have already considered the effects of heat upon the human body; and shall now examine those which result from an excess or absence of light.

An excess of light produces inflammation in the eyes, and a temporary blindness which is called people who are affected with it can see only during the night or the dusk. The influence of light is very considerable in irritable habits. The absence of light sometimes produces a temporary blindness, and effects of darkness are probably still more considerable. The light of the moon influences perspiration & evaporation. The interception of the light of the sun by means of a cloud has induced the yellow fever; and hypochondriac patients are always rendered worse by a dark ~~day~~ and cloudy day. Diseases generally make their appearance during the night, & it is at this period also that death most frequently occurs. May not these effects be owing in part to the absence of light?

The

[Faint, illegible handwriting on aged paper]

the
the
full of
ledge
the
the
after the
yellow
the
aptysi
Part
the
child
Is
own
Ma
we can
col. B
is imp
said
to be
Eph
upon
Hospita

The influence of the moon is felt by many parts both of the animal & vegetable world; even oysters are fatter during the full of the moon. But its influence is perceptible also on the human body, and is still more so when it is in a diseased state.

Fevers are ~~said to~~ affected by it. It has been observed that deaths from the Plague are most frequent, a few days before & after the full of the moon. This was also perceived in the yellow fever of 1798 in this city.

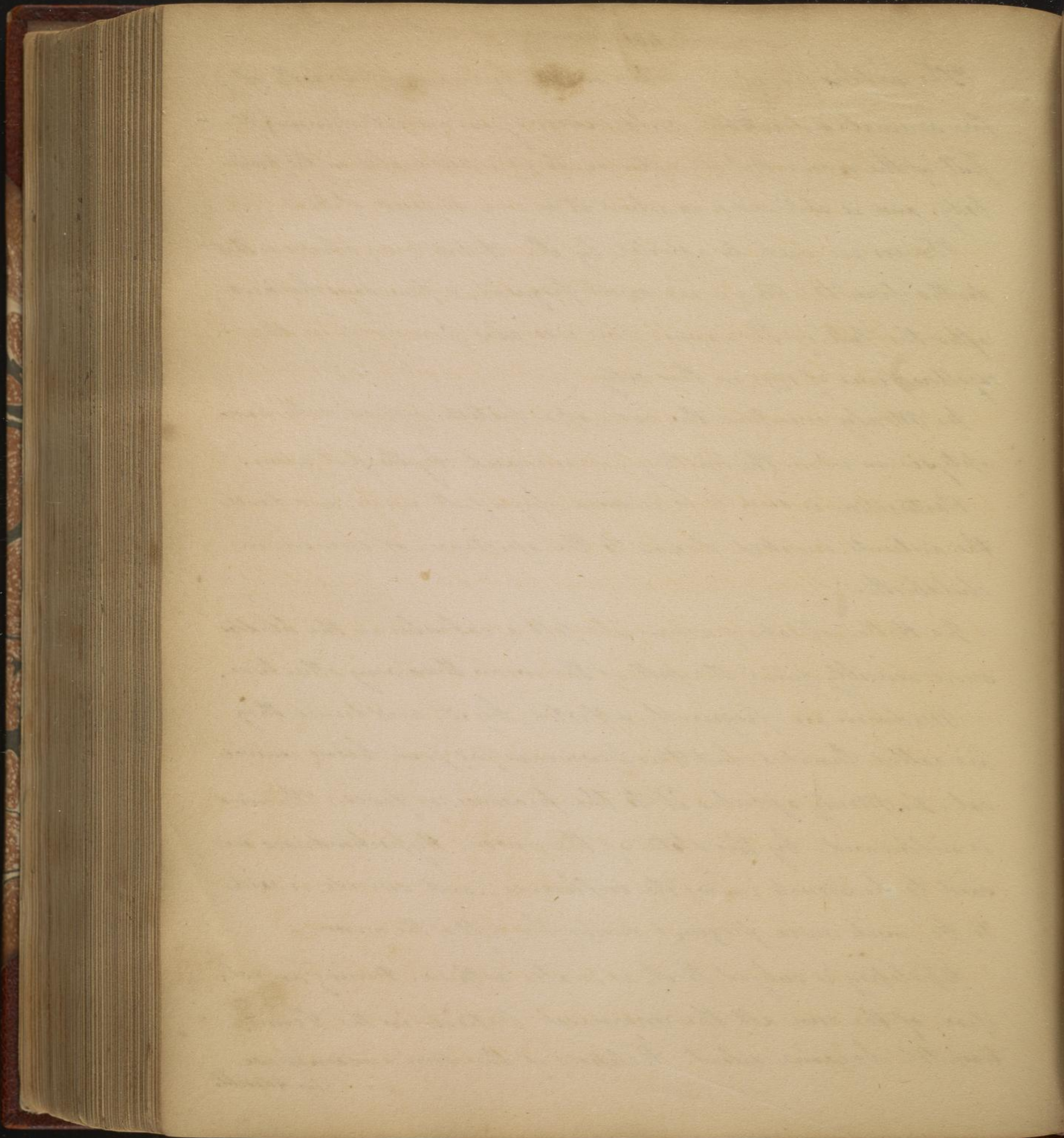
Dr. Morely mentions the case of a British officer with hamoptysis in whom the spitting was increased by the full moon.

Parturition is said to be induced by a full moon, and hence the ancients invoked Lucina to the assistance of women in childbirth.

Dr. Haller speaks of a man who felt a calculus in the bladder more sensibly during the full of the moon than any other time.

Madmen are frequently affected by it, and hence they are called Lunatics; but this however is far from being universal. Dr. Morely ascribes it to the presence of fever. The mind is influenced by the state of the moon; Hypochondriacs are said to be much under its influence, and suicide is said to be much more frequent during the full of the moon.

Epilepsy is subject to it, as is also asthma. During an eclipse of the sun all the maniacal patients in the Penn^a Hospital became silent. Eclipses of the sun & moon have considerable



consider
during
effects
of
one of
ation of
visions
we saw
called
import
consider
1800
to
change
the imp
owing
that
owing
the
in the
tend to
body
a guide
time

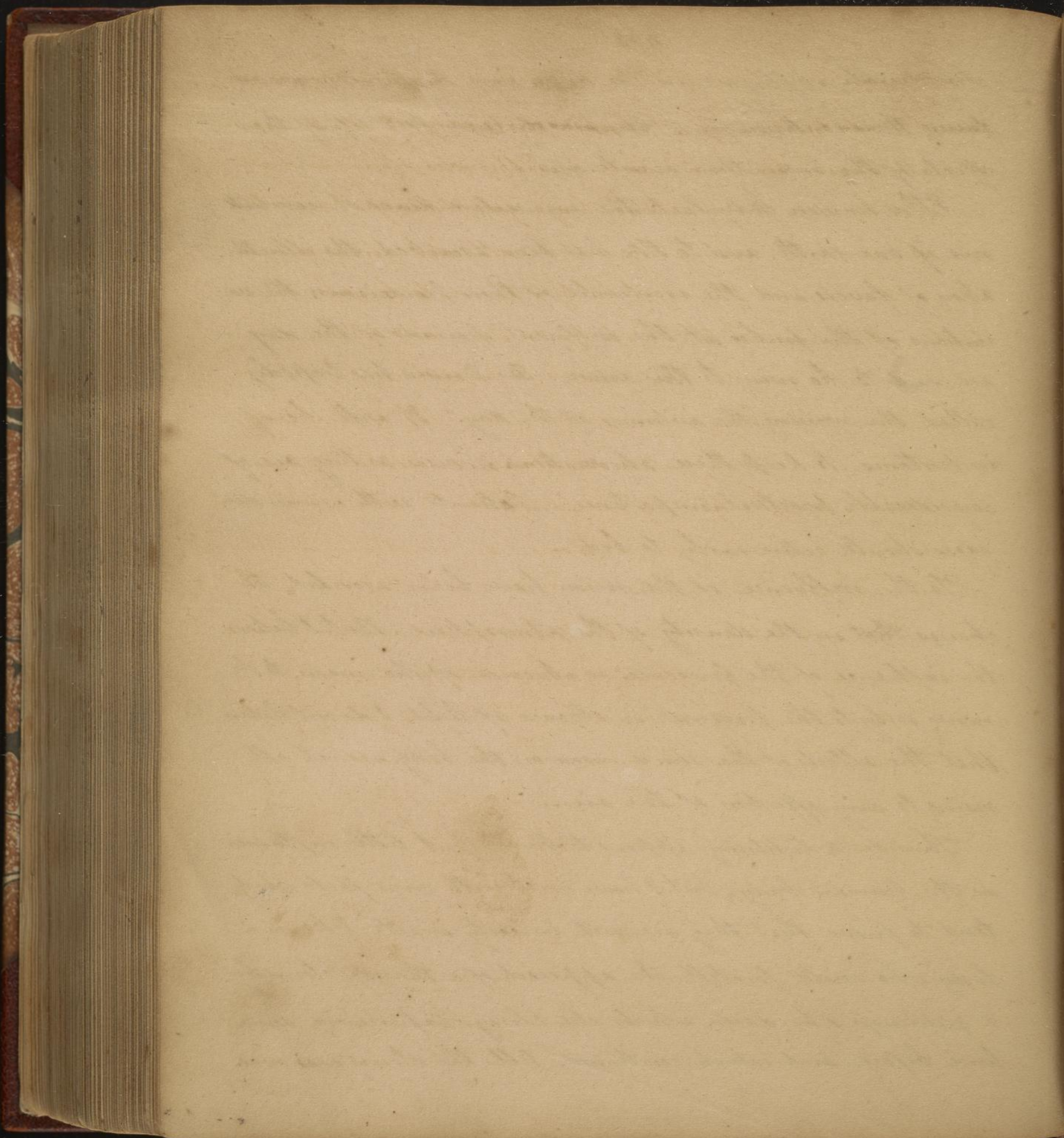
considerable influence on the body, and death often occurs during their continuance. Chronic diseases feel less of the effects of the moon than acute ones.

The human body feels the annual & diurnal revolutions of our earth, and to this has been ascribed the fluctuation of fevers and the recurrence of their paroxysms: the variations of the pulse at the different periods of the day are said to be owing to this cause. Dr. Darwin has happily called the evening, "the autumn of the day." It will be of importance to keep these observations in view, as they are of considerable practical importance. Patients with chronic diseases should retire early to bed.

To the influence of the moon have been ascribed the changes ~~that~~ in the density of the atmosphere. But I believe the influence of the presence or absence of the moon, to be owing only to the presence or absence of light. I do not believe that the effects of the sun & moon on the body are at all owing to any affection of the air.

Thunder & Lightning appear to have but little influence on the human body, but I have met with some facts which tend to prove that they are not entirely inert. I knew a lady who could foretell the approach of a thunder storm by a giddiness & headache which she always experienced some time before, and which continued till the storm was over.

Some



done
fenced
of dech
kept a
the dis
at no
tively a
herch
the wea
predict
the lecc
off
by the
town
Hedy
filing o
of a can
of a for
with coo
the fin
the de
appea
dured

Some people are born with or acquire a *thunderphobia*, I knew a lady in this city who appeared to exhibit all the agonies of death during the continuance of a thunder storm; and was kept alive only by drinking large quantities of spirits; this she did without being intoxicated, although she drank it at no other time. The excitability seemed to be almost entirely expended by the agitation of her mind.

Leeches appear by their motions to be sensible of the changes in the weather. Mr Cooper informed me that he could always predict the approach of a thunder storm, by certain motions of the leeches which he kept in his house.

The *Aurora Borealis* produces disease in no other way than by the passions which it excites.

Sound appears to have a considerable effect on some people. A lady in this city is always affected with chilly sweats, trembling & the appearance of a great fever, on hearing the noise of a carriage drove over the pavements of our streets. The noise of a few cannon on the outset of a battle, inspires a whole army with courage. Deafness & even death have been produced by the firing of cannons; it has occasioned birds to fall dead on the deck of a ship. The ringing of bells has revived persons apparently dead. Fits of *Epilepsy* have sometimes been induced by noises.

[Faint, illegible handwriting in cursive script, likely bleed-through from the reverse side of the page.]

[Faint, illegible handwriting on the right edge of the page, possibly from an adjacent page.]

Of the morbid effects of Aliments and Drinks
upon the Body —

It has been said that many of the evils of this life are blessings in disguise, and it is an undoubted fact that many of the blessings of this life are often evils in disguise. This is truly the case with aliments & drinks. I shall first speak of aliments.

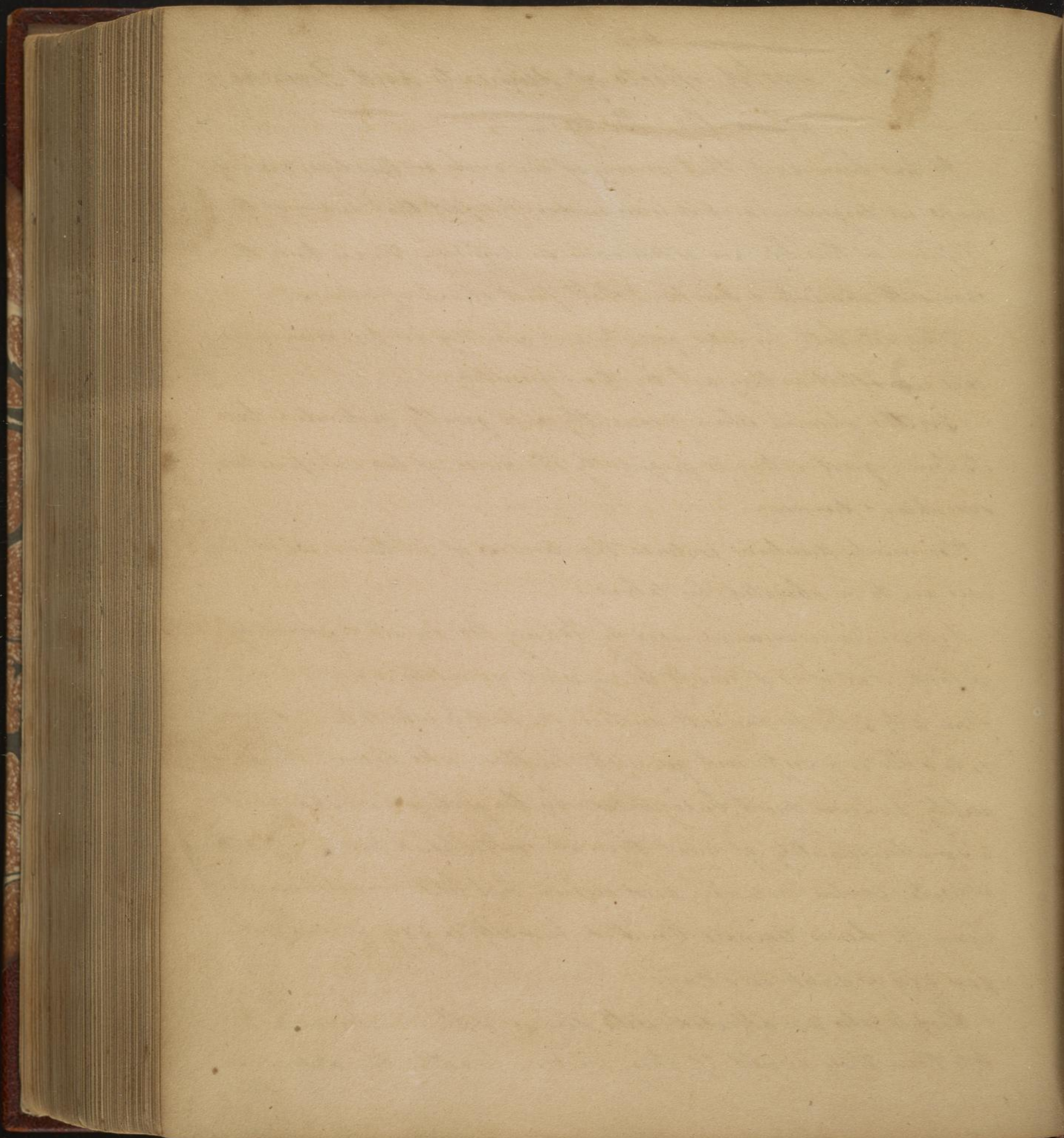
They act both by their quality and quantity in producing disease: and first as they act by their quantity.

~~See~~ The stomach when frequently and greatly distended loses its tone; great eating is frequently the cause of two vile practices, sneaking & drinking.

Too much drinking induces the diseases of plethora, which however are to be obviated by labour.

Disease is occasioned also by taking too small a quantity of food, but it is difficult to say what quantity is sufficient: from 6 to 8 lbs per day will suffice for people who labour, & from 4 to 6 lbs is a sufficient quantity for those who do not; the quantity however must be regulated by the quality, we should eat a smaller quantity of meat than of vegetables. A person eat 32 lb. of water melon in a day, and receive but little nourishment from it. Lewis Carnaro limited himself to 3xij of solid food and 3xij of drink in a Day.

People who are affected with disease will sometimes eat less than they would if they were in health; the disease in
this



this
the
very
afford
ment,
the
appears
under
receive
sanction
at least
with
prod. in
and for
patite.
more
the
Hidat
tions
me
the fa
death
Hing
sheng

this case supplying the place of the stimulus of food.

Those persons whom Dr Haller mentions as having lived upon very small quantities of ~~food~~ food took some water, which afforded the stimulus of distention. Together with some nourishment, for water is not entirely destitute of nourishment.

The diseases which are induced by a deficiency of nourishment, appears chiefly in children, in slaves, and in people who labour under mistaken ideas of religion. Children at the breast often receive ^{an} insufficient ~~nourishment~~ supply of milk, and this sometimes lays the foundation for lasting diseases. Children at boarding schools are sometimes insufficiently supplied with food. Slaves have frequently too small a quantity of food, in which case their strength is proportionably small, and from the same cause they have less of the venereal appetite. Abstinence has been common in all religions and more particularly among the monks.

Famine accumulates the excitability, distends the gall bladder, banishes sleep, the urine and all the other secretions become acid, and the breath fetid. These effects are succeeded by a hemorrhage from the mouth & stomach; the fauces & gums swell, delirium and mania come on & death closes the scene.

Hunger renders the appetite ravenous. It increases the strength of some animals, as the lion, and in a small degree

degree
strong
purper
full, as
Kine
is seen
of the
2
Man
ies of
kind
A. de
which a
suate
in a ge
carniv
table
them
and fa
occasio
tim
who
me

degree it increases the strength of man. The Duke of Marlborough used to say that for immediate engagement he would prefer Scotsmen when hungry, Englishmen with their stomachs full, and Irishmen when half drunk. The stimulus of the desire of food and of life acts upon the excitability ~~of~~ which is accumulated by hunger and thus increases the strength of the system.

2nd of the quality of Aliments.

Man was made to be nourished by the different species of aliments; and diet consisting exclusively of one kind produces disease in him.

1. Of diseases produced by animal food alone.

A diet of fish produces the Itch, Leprosy &c. Diseases which are produced by other animal food are itching, fatid sweat & urine, Leprosy, scurvy &c. It produces these effects in a greater or less degree in proportion as the animals are carnivorous or graminivorous, the former being much more liable to it than the latter. Flesh of old animals induces them in a greater degree than that of young ones, and pork and fat meat sooner than others. They do not appear to be occasioned by the flesh of wild animals: these however contain less nourishment than domestic ones, and the Indians who live almost intirely on them are less strong, though they are more active than whitemen. Fresh animal food will
produce

[Faint, illegible handwriting on a blank page, likely bleed-through from the reverse side.]

produce
the over
kind
former
fifteen
degree
it is for
violent
A on
of each
use mu
fresh
In this
former
vegeta
duction
Algae
2
Mar
When
week
some to
2 Do
every

produce scurvy. It induces disease when the animal has been too much exercised before being killed. An instance of this kind occurred some years ago in the state of Connecticut: a farmer killed an ox after working him very hard, and of fifteen persons who ate of his flesh, fourteen died in consequence of it. Animal food likewise induces disease when it is putrid. All the excretions are rendered acrid by violent exercise or long traveling.

A material change has taken place in the diet & diseases of Europe since the 16th Century. At that time animal food was much more employed than it is at present. The common breakfast of Queen Elizabeth was a beef stake and a pot of ale. On this account the Plague frequently appeared in Europe in former times; but when science, religion & virtue revived, vegetables became more usual articles of diet. Since the introduction of vegetable aliment into England by William III. the Plague has not made its appearance in that country.

2 Of diseases produced by Vegetable Aliment. —

Many Nations live almost intirely upon vegetable Aliment. When it is exclusively employed it induces, first, Universal weakness, and at first irritability both of body & mind; after some time however this becomes tranquilized.

2 Dropsical swellings, Dyspepsia & Dysentery; also a deficiency of the venereal appetite. all these were very common in

[Faint, illegible handwriting across the page]

in Eng
a war
phen
best of
Reside
shes
to ind
tallance
A
Hince
sons
fewer
over
malig
emph
them
also
prow
Mu
stomach
one of
cutane
Good
see

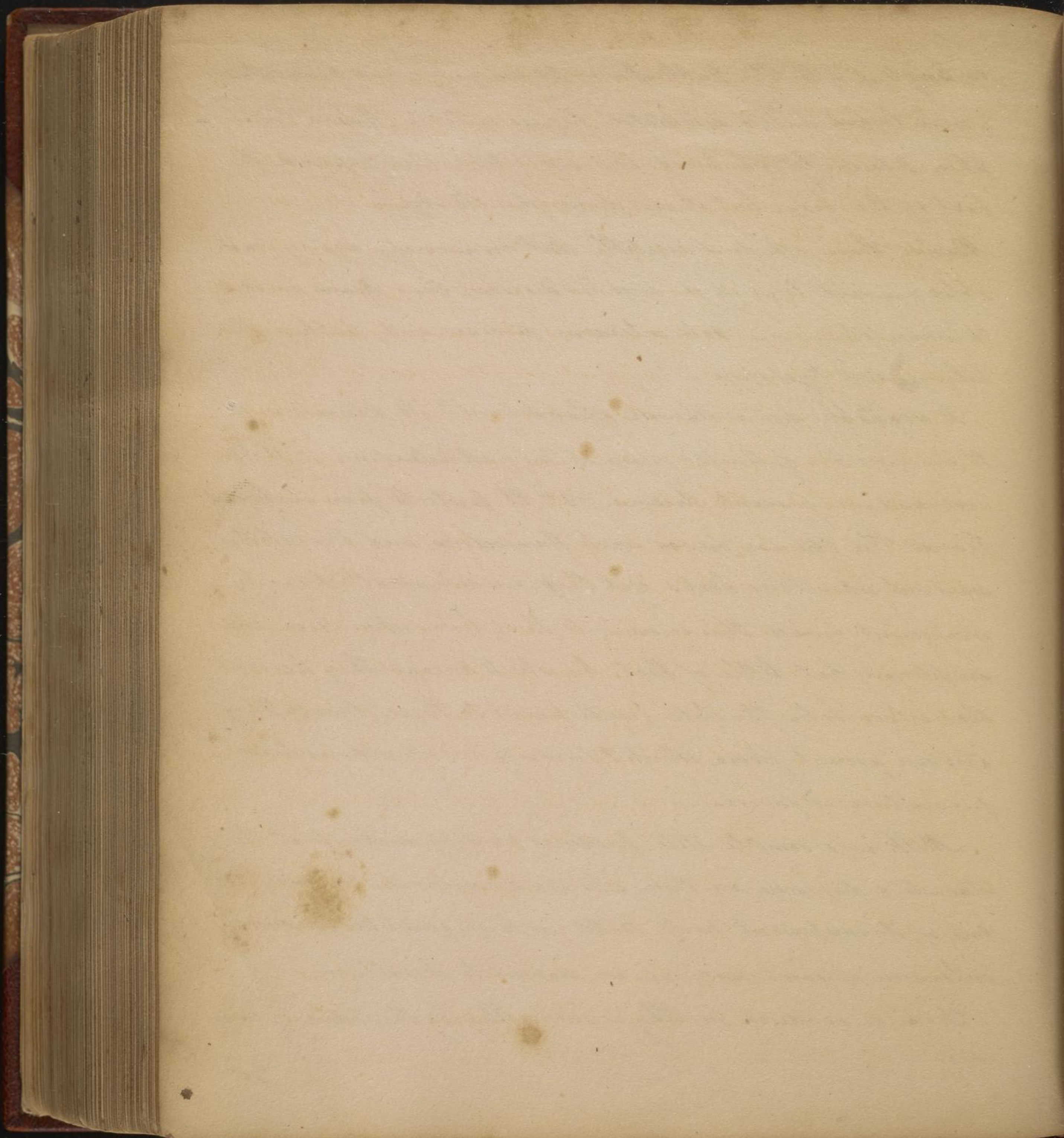
in England after the publication of Dr. Cheyne's, and hence when a man looked pale & debilitated he was called a starving Philosopher. I formerly mentioned that a vegetable diet lessened the heat of the body, but it also diminishes its size -

Beside these effects of vegetable diet in general, many vegetables are said to produce peculiar diseases: thus Beans are said to induce flatulence, Oats cutaneous diseases, and Cabbage flatulence and Dyspepsia -

A vegetable diet is likewise attended with its advantages. 1st It increases the fullness & vigour of the understanding. 2nd It lessens and even prevents dreams. 3rd It protects from malignant fevers. The Chinese never wash themselves, and their clothes wear out upon their backs, yet they are seldom attacked by malignant fevers. This is owing to their living upon Rice, and employing but little of that, by which means they keep themselves below the state predisposing to these fevers. They also use ground floors, which I formerly mentioned as being preventive of fevers -

Milk in a simple state produces acidity, sickness at the stomach & dyspepsia in those who are accustomed to a city diet. One of its component parts, Butter, in large quantities produces cutaneous diseases, and Cheese disposes to heartburn.

Food is rendered healthy or unhealthy by the following causes.

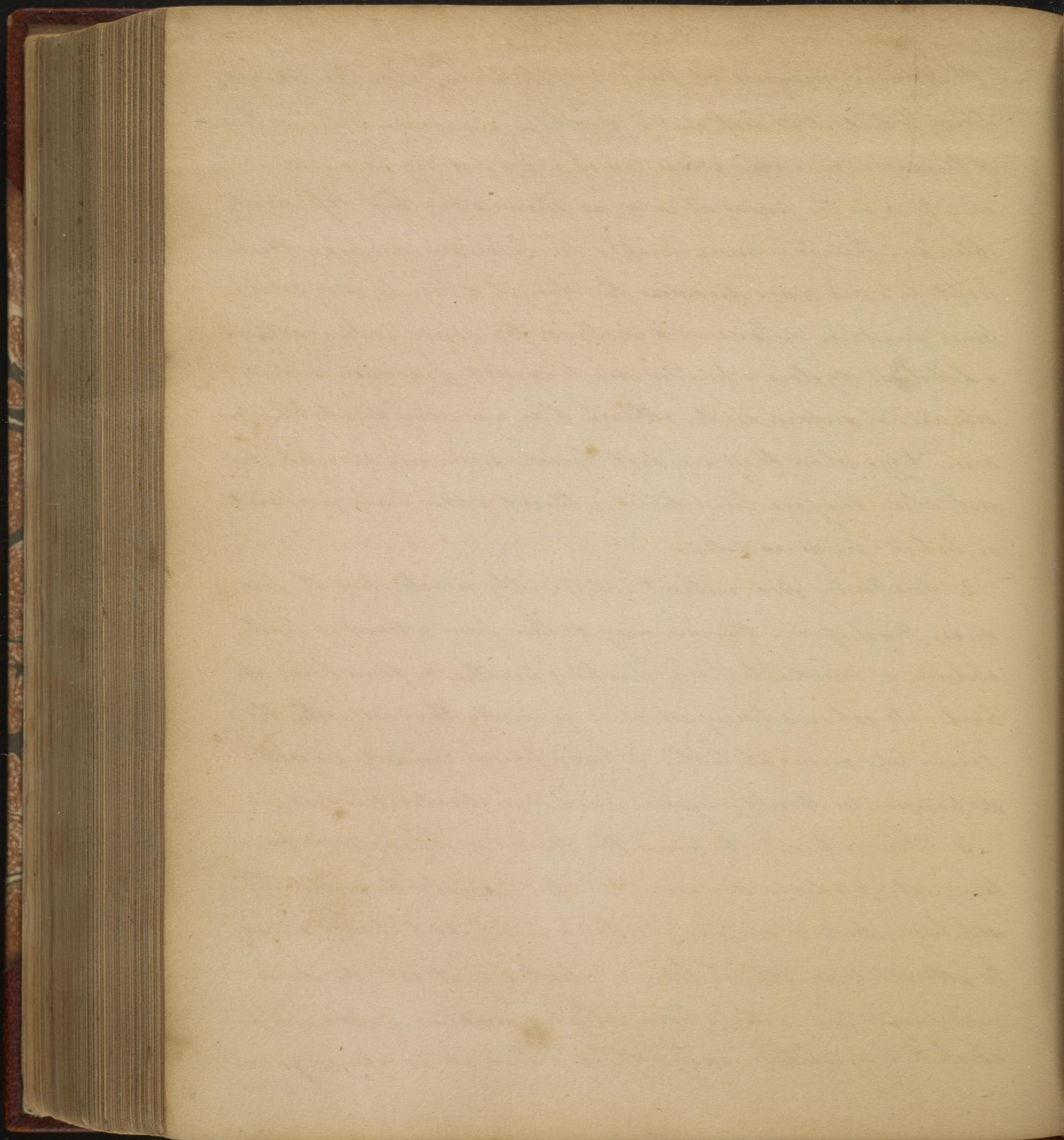


at the
line
of the
ed. 11
ible, an
kist /
times /
+ lobit
phycia
ow.
not a
n. lat
2 da
lucis
abence
lyed
person
the pro
3
two gro
debilit
be all
misch
absolut

1st By the manner of preparing it. When ^{flesh is} eaten too soon after being killed it is not easily digestible, and when kept too long it produces diarrhoea; when raw it is less healthy than when cooked. It is in the former state more stimulating but less digestible, and therefore more proper for labouring people. Fish kept for a few days disorders the stomach & bowels, and sometimes produces cutaneous affections: the same is true of Crabs & Lobsters. Oysters when too much roasted produce Colic, dyspepsia or sudden death, although they are very digestible when raw. Eggs when they are soft boiled are easily digested, but not when they are hard boiled. Bread when half prepared or baked produces Colic.

2 Swallowing food without sufficiently masticating it produces Dyspepsia. Persons may do this from a want of teeth, absence of mind, talking, drinking healths, or from being obliged to eat in a hurry which is generally the case with the person who carves at table. When a person consults us with dyspepsia, we should enquire how he masticates his food.

3 The interval between the times of taking food being too great, produces disease. The stomach vibrates under the debility which is induced by being empty, and should never be allowed to be idle, or like a school boy it will be doing mischief. The fasting from religious motives should not be absolute but relative only. Food either in excessive quantities



other on
dial
H. B.
expire
sailors.
who are
ed by
pocket
5
over
inal to
adder
on the
Lapses
6
element
ies, the
is in
ears
7
Mr. H.
of the
8
a fluid

tities, or of an unwholesome quality, may be rendered less prejudicial by labour.

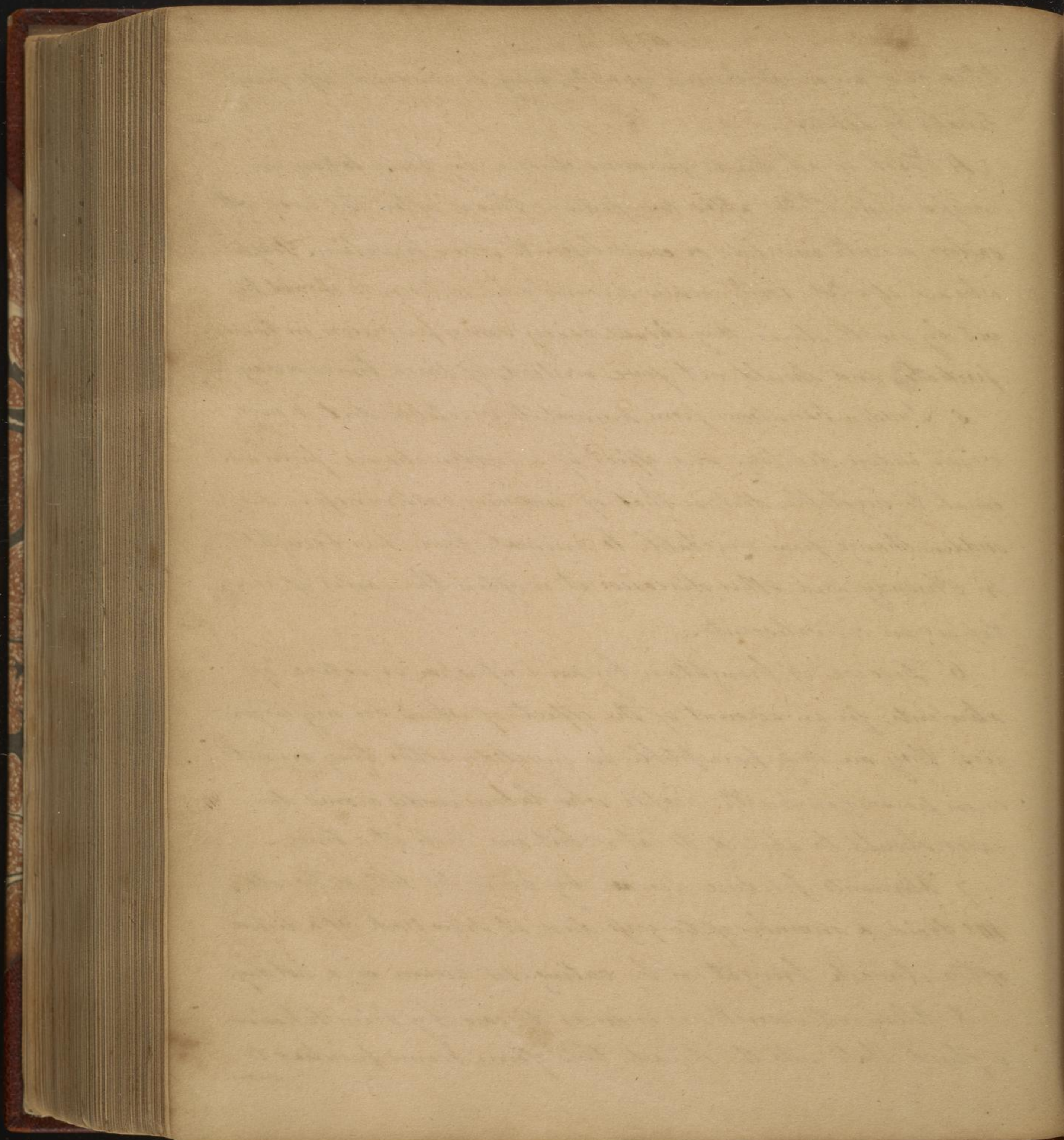
4 Food of all kinds produces disease by being taken in excessive quantities after long fasting. This is often the case with sailors, or with invalids or convalescents when traveling. People who are affected with cronic diseases & convalescents should travel by small stages, they should carry some provision in their pockets, and should eat five instead of three times a day.

5 Sudden transitions from animal to vegetable diet & vice versa induce debility. One effect of a sudden change from animal to vegetable diet is that of inducing costiveness. A sudden change from vegetable to animal food has brought on Phrenzy and other diseases: it is often the cause of relapses in convalescents.

6 Disease is brought on by an improper mixture of aliments; for an account of the effects of which see my inquiries; they are very perceptible in invalids, altho they are not so in persons in health. People who labour under cronic diseases should be advised to eat of but one dish at a time.

7 Aliments produce disease by being too hot or too cold; Mr Reid a member of Congress died at New York of a disease of the stomach brought on by eating Ice cream on a hot day.

8 Aliment sometimes induces disease by being taken in a fluid state into the stomach; this form seems peculiar to
men



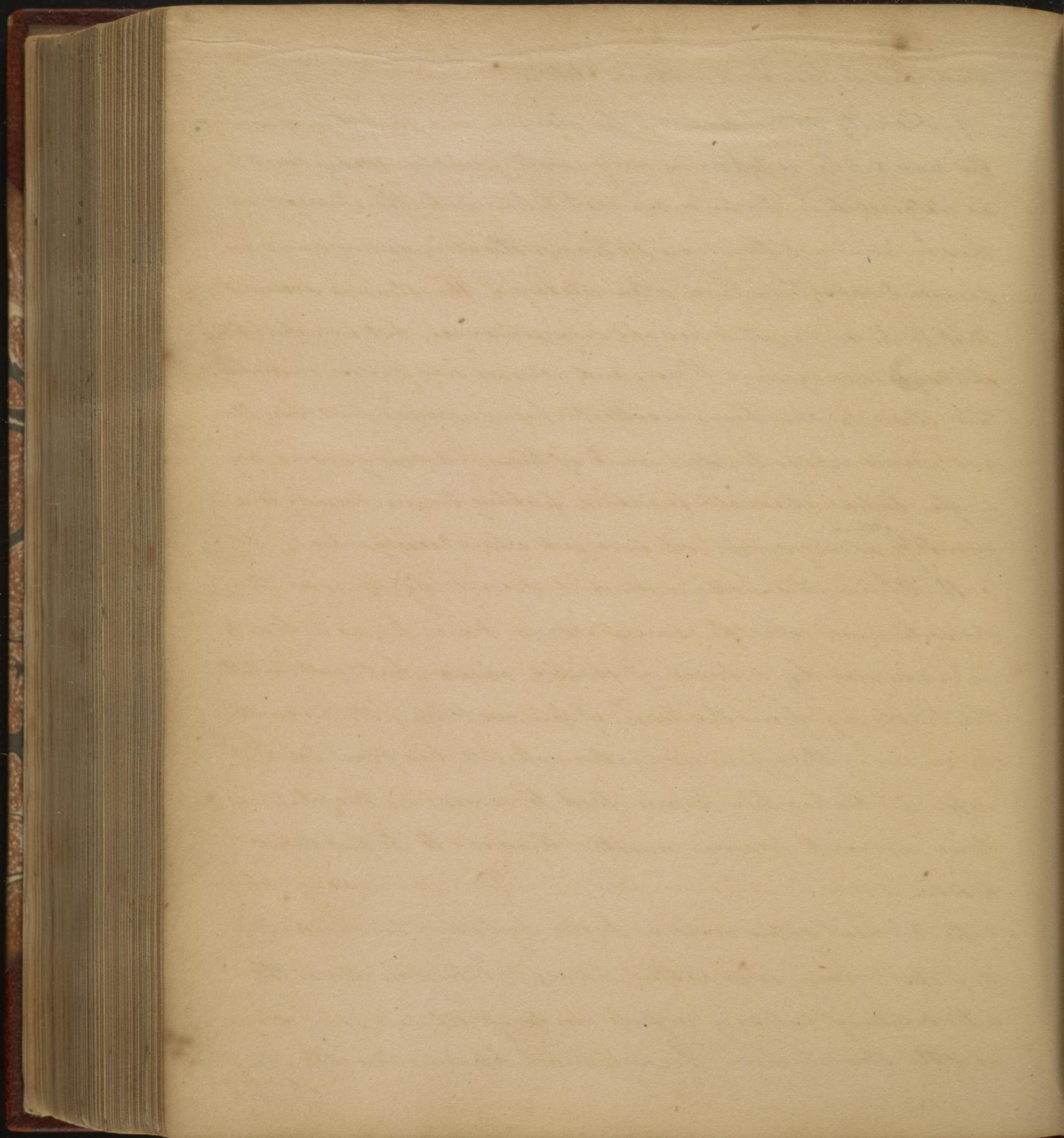
man, an
of S
the me
as Cate
the leg
pleas
just to
the age
the stor
and see
single
quantity
" A
stomach
be man
the thin
by cen
resp. 2
from or
disease
" A
impur
introduc
is of the

man, and to him in a civilized state -

9 Novelty often disorders the stomach, and that too when the new article is taken in very small quantity. Many fruits, as Water melons, Peaches &c are not taken into the stomach in the beginning of the season for them, without inducing some unpleasant sensations, and often disease; the stomach seems at first to have forgotten her old acquaintances, but in a short time she again recognizes them, and renews her former cordiality. The stomach sometimes recollects her enemies for a long time, and seems never to forget some of them. A few years ago a single boiled chestnut produced puking in me, owing to a quantity ^{of them} having made me very sick when I was young -

10 Aliments sometimes induce disease by lying on the stomach undigested for several days. I once knew a lady to be made sick by a piece of spoiled cheese, but not untill the third day from the time of her swallowing it: an emetic by removing the offending matter relieved her from her sickness. Dr Haller has known food to remain in the stomach from one week to seven months, previous to its producing disease -

11 Aliment often occasions disease by having been cooked in improper vessels, such as those of copper, lead &c. Since the introduction of culinary vessels made of silver & Iron, diseases of the stomach have become much less common than they formerly



January
12
on out
accoun
he sick
therefor
I suspec
under
has fed
particu
scurvy
studen
a pupa
for some
min
ed. G
cities
former
time a
a Byss
by the
the crea
Cholera
general

formerly were.

12 Aliments may be rendered unwholesome by being eaten out of vessels that are not clean, or by being mixed with the excrement of some animal, I once knew a whole family to be made sick by a basin of milk into which a spider had fallen. When therefore a whole family is affected with disease at one time I suspect some unwholesome diet. Animal food is sometimes rendered ~~unwholesome~~ unwholesome by the substance the animal has fed on; this has several times occurred in Philadelphia particularly with the Pheasants which have been rendered poisonous by eating the buds of the Laurel. I once knew fifty students at Princeton College affected with diarrhoea from eating a pigeon pye; the birds of which it was made having subsisted for some time chiefly upon poke berries.

Animal food is more or less wholesome as it is fresh or salted. The reason why gangrene appears more frequently in cities than in the country, is owing to the inhabitants of the former subsisting more upon fresh than salted meat. At one time during the American Revolution, fresh meat produced a Dysentery in our army, the progress of which was stopped by the use of salted meat. The circumstance of children in the country, being less subject than those in the city, to the Cholera Infantum, is I believe to be ascribed to the more general use of salt meat in the country. Salt meat in
moderation

the first of these is the fact that the
the second is the fact that the
the third is the fact that the
the fourth is the fact that the
the fifth is the fact that the
the sixth is the fact that the
the seventh is the fact that the
the eighth is the fact that the
the ninth is the fact that the
the tenth is the fact that the
the eleventh is the fact that the
the twelfth is the fact that the
the thirteenth is the fact that the
the fourteenth is the fact that the
the fifteenth is the fact that the
the sixteenth is the fact that the
the seventeenth is the fact that the
the eighteenth is the fact that the
the nineteenth is the fact that the
the twentieth is the fact that the
the twenty-first is the fact that the
the twenty-second is the fact that the
the twenty-third is the fact that the
the twenty-fourth is the fact that the
the twenty-fifth is the fact that the
the twenty-sixth is the fact that the
the twenty-seventh is the fact that the
the twenty-eighth is the fact that the
the twenty-ninth is the fact that the
the thirtieth is the fact that the
the thirty-first is the fact that the
the thirty-second is the fact that the
the thirty-third is the fact that the
the thirty-fourth is the fact that the
the thirty-fifth is the fact that the
the thirty-sixth is the fact that the
the thirty-seventh is the fact that the
the thirty-eighth is the fact that the
the thirty-ninth is the fact that the
the fortieth is the fact that the
the forty-first is the fact that the
the forty-second is the fact that the
the forty-third is the fact that the
the forty-fourth is the fact that the
the forty-fifth is the fact that the
the forty-sixth is the fact that the
the forty-seventh is the fact that the
the forty-eighth is the fact that the
the forty-ninth is the fact that the
the fiftieth is the fact that the
the fifty-first is the fact that the
the fifty-second is the fact that the
the fifty-third is the fact that the
the fifty-fourth is the fact that the
the fifty-fifth is the fact that the
the fifty-sixth is the fact that the
the fifty-seventh is the fact that the
the fifty-eighth is the fact that the
the fifty-ninth is the fact that the
the sixtieth is the fact that the
the sixty-first is the fact that the
the sixty-second is the fact that the
the sixty-third is the fact that the
the sixty-fourth is the fact that the
the sixty-fifth is the fact that the
the sixty-sixth is the fact that the
the sixty-seventh is the fact that the
the sixty-eighth is the fact that the
the sixty-ninth is the fact that the
the seventieth is the fact that the
the seventy-first is the fact that the
the seventy-second is the fact that the
the seventy-third is the fact that the
the seventy-fourth is the fact that the
the seventy-fifth is the fact that the
the seventy-sixth is the fact that the
the seventy-seventh is the fact that the
the seventy-eighth is the fact that the
the seventy-ninth is the fact that the
the eightieth is the fact that the
the eighty-first is the fact that the
the eighty-second is the fact that the
the eighty-third is the fact that the
the eighty-fourth is the fact that the
the eighty-fifth is the fact that the
the eighty-sixth is the fact that the
the eighty-seventh is the fact that the
the eighty-eighth is the fact that the
the eighty-ninth is the fact that the
the ninetieth is the fact that the
the ninety-first is the fact that the
the ninety-second is the fact that the
the ninety-third is the fact that the
the ninety-fourth is the fact that the
the ninety-fifth is the fact that the
the ninety-sixth is the fact that the
the ninety-seventh is the fact that the
the ninety-eighth is the fact that the
the ninety-ninth is the fact that the
the hundredth is the fact that the

moderation is not unwholesome; it is in the summer much preferable to that which is fresh, and it is much to be wished that our farmers would use the former during the summer & the latter during the winter. When salt meat is eaten for a long time without any vegetables, it induces scurvy.

There are some idiosyncrasies toward certain aliments which render them wholesome or unwholesome, and these are often hereditary.

Of the diseases produced by Condiments.

These are Salt, Sugar, Vinegar, Mustard & Spices.

Salt is a very useful article of diet, and almost an universal one. When it cannot be obtained, ashes & alkalis have been used in its place. Some nations however never use it.

Vinegar in moderate quantities is both agreeable & wholesome, but in large quantities it produces Colic, Dyspepsia &c. In 1770 it was said to remove fat & produce leanness. Many of our ladies used it profusely to the material injury of their constitutions, but found it not to produce the desired effect.

Mustard disposes to inflammatory diseases by its excessive stimulus. A Physician would derive much advantage from occasionally dining with his patients. I once in this way discovered that the gouty attacks of a patient proceeded from the excessive use of mustard. I dissuaded him from the use of it and he has had no symptoms of the disease since.

People

People differ in nothing more than in the quantity of food they eat. Great eaters will sometimes tell a Physician that they are extremely moderate. Dr Kimmerrman informs us that Frederick II fell a victim to his enormous appetite; and yet he would never acknowledge that he had eaten too much. But when spoken to on the subject, would reply that he eat merely enough to keep soul & body together. He was so fond of condiments, that the Dr. tells us that at 72 years of age his kitchen resembled a apothecaries shop more than anything else.

4 Sugar notwithstanding it is the most gratefull & nourishing of all the condiments when taken in moderate quantities, yet in excess it produces Dyspepsia &c. Many people from having been once surfeited with it are never afterward able to bear it. Honey & Melasses in excess likewise induce disease.

5 Spices when taken in moderate quantities assist digestion, but in large quantities they induce Dyspepsia
Tea and Coffee.

A revolution has taken place in the customs & manners of every nation since the introduction of these two articles into diet.

If not too strong, or if mixed with a sufficient quantity of cream & sugar, tea is not unwholesome. It will sometimes induce and sometimes prevent sleep according as the system is above or below the sleeping point. When taken too strong or not properly modified by cream & sugar, it induces debility & nervous complaints.

as by
to the
with the
please
Coffee
it some
I knew
he pat
which
of old, the
in the
kept
we when
does he
we know
some one
me at a
Man
this is
hands of
1st
and has
It comes

as Hysteria, and if it be taken in large quantities it predisposes to the Gout. From this cause it is that women are more affected with the Gout than men in the proportion of ten to one. This disease appears in them in various forms.

Coffee is a gentle stimulus & cordial, but when used too strong it sometimes produces Vertigo, and the effects of ardent spirits. I knew a Physician, who before going out in the cold to visit his patients was accustomed to drink a pint of hot Coffee - which he found to answer much better, in preventing the effects of cold, than spirits. Coffee seems to act more specifically on the brain and tea on the nerves; hence when we are kept awake by coffee we lie still, and are not restless as we are when sleep is prevented by tea. Coffee sometimes produces headache as well as Vertigo; in such cases I forbid its use and direct milk or chocolate. Tea also as being less injurious may be used in its place. Neither tea nor coffee alone are at all nutritious.

Of Drinks.

Man is unable to live without drink of some kind, though this is not the case with some other animals. Of the different kinds of drink are Water, Wine, Beer, Cider and ardent spirits.

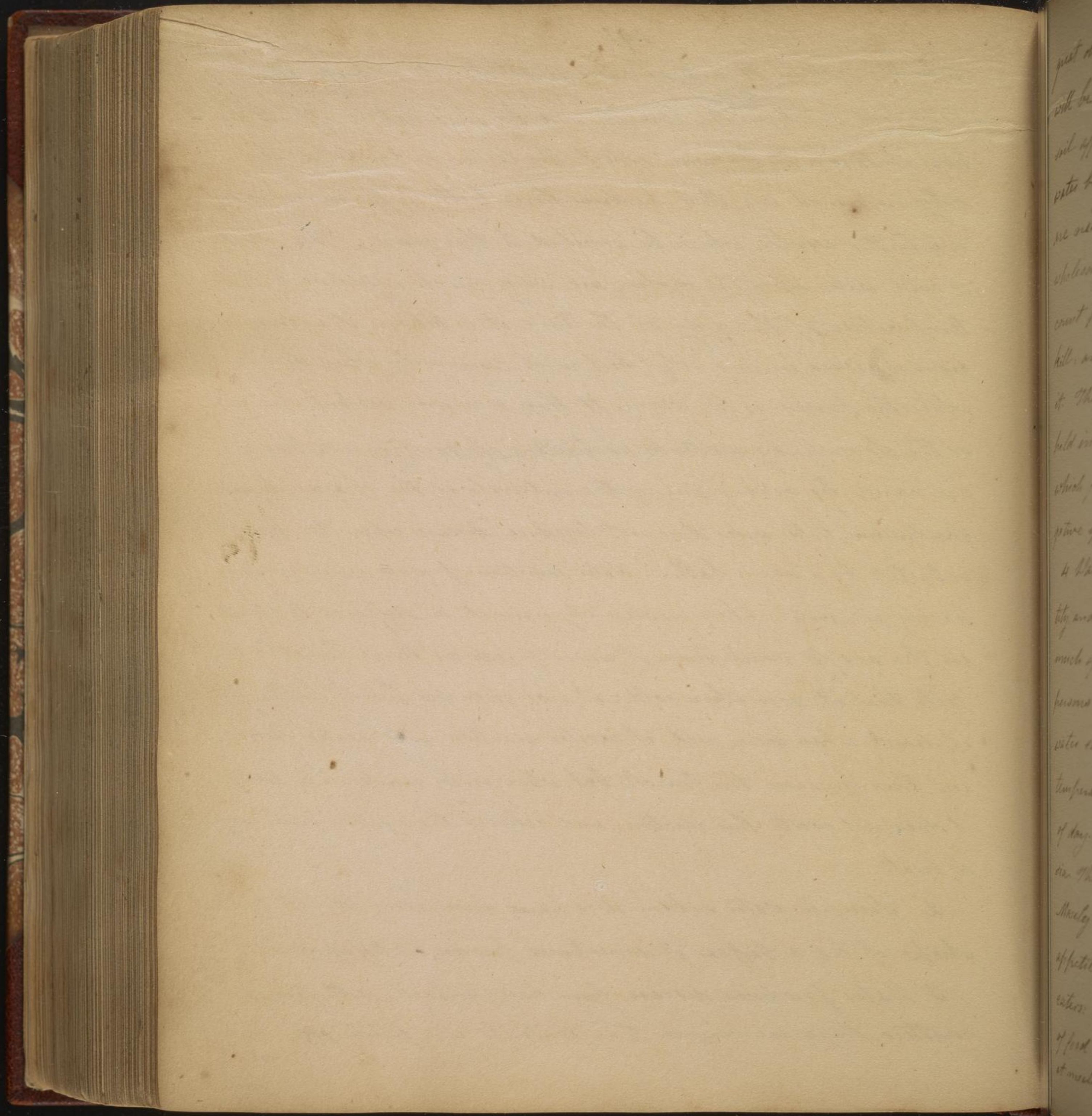
1st Water is the most wholesome and pure of the whole of them, and has received praises from Physicians, Poets and Philosophers. It sometimes however serves as a medium thro which diseases enter

^x and destroying the equilibrium of the system.

enter the system. It induces disease 1st By its coldness. When very cold it acts on ^{the} stomach, and by its sedative effects destroys its tone. It likewise affects the teeth. A Dentist of this city informed me that he drew three teeth in the summer for one in the winter, which he ascribed to this cause. The effects of cold water upon the system are very much influenced by the temperature of the body at the time it is taken; it induces various diseases in this city, but most commonly when drunk while the person is too warm. It then occasions violent spasms of the stomach by suddenly abstracting its excitement. These are cured by giving during the intervals of the spasm, liquid Laudanum. Cold water does not produce disease when the body is heated by a warm bath. Water sometimes proves injurious from having ice in it. When moderately warmed or suffered to stand in the air for some time it never produces those terrible effects that it does when cold; it also quenches thirst better, for if drunk when very cold it excites reaction and creates fever and thus increases the thirst. But when only moderately cold, it does not excite this reaction, and relieves the system from excess of heat.

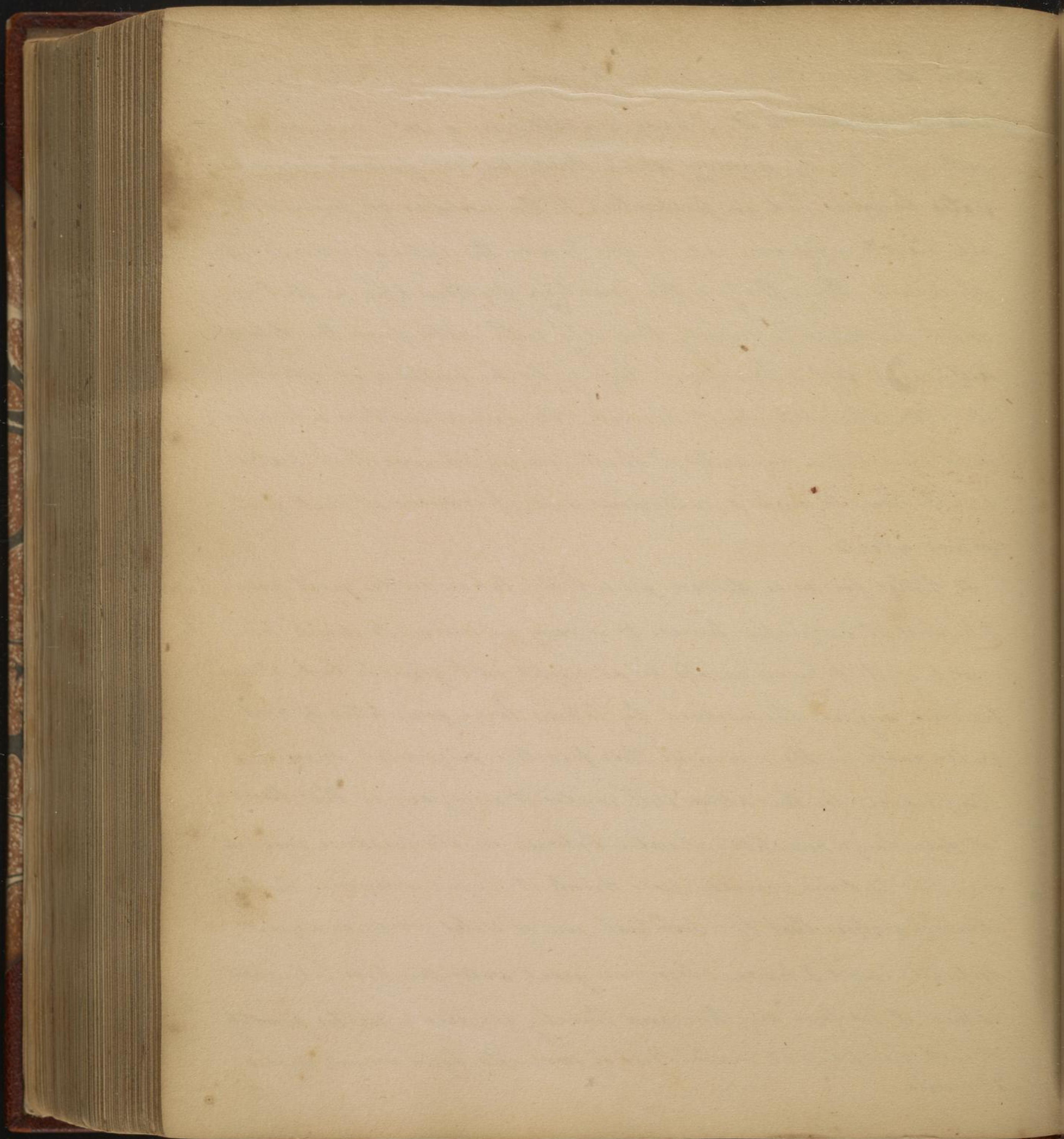
2 Simple water seldom does harm from being too hot. In the shape of tea & Coffee it sometimes produces Dyspepsia.

3 Water produces disease from being mixed with foreign matters, these are various. The contents of a privy pail for a great



great distance through the earth, and a well dug within 20 feet will be affected by it. I have myself seen a well in a sandy soil affected by a privy which stood 60 feet from it; hence the water becomes bad in proportion to the number of privies that are near to a pump, and for this reason the water of cities is less wholesome than that of the country. Dr Franklin on that account proposed to supply this city with water from the Schuylkill, and left a handsome legacy for the purpose of effecting it. The Chemists must describe the saline matters which are held in solution by water: I shall merely observe that water which flows through a calcareous soil, produces at first purgative effects.

4 Water produces disease from being taken in too great quantity, and at improper times. It is very injurious to drink too much of it between meals, or at night just going to bed. Many persons injure themselves by taking large quantities of cold water early in the morning: this practice originated from intemperance, for this alone will render it necessary at this time of day. Large quantities of water between meals produce dyspepsia. The Indians scarcely ever drink it before evening. Doctor Moseley notices that the habitual use of water produces a great appetite, and I have observed great water drinkers to be great eaters: it hastens digestion and thereby renders a greater quantity of food necessary at meals. Beer or some other liquor is more proper at meals.

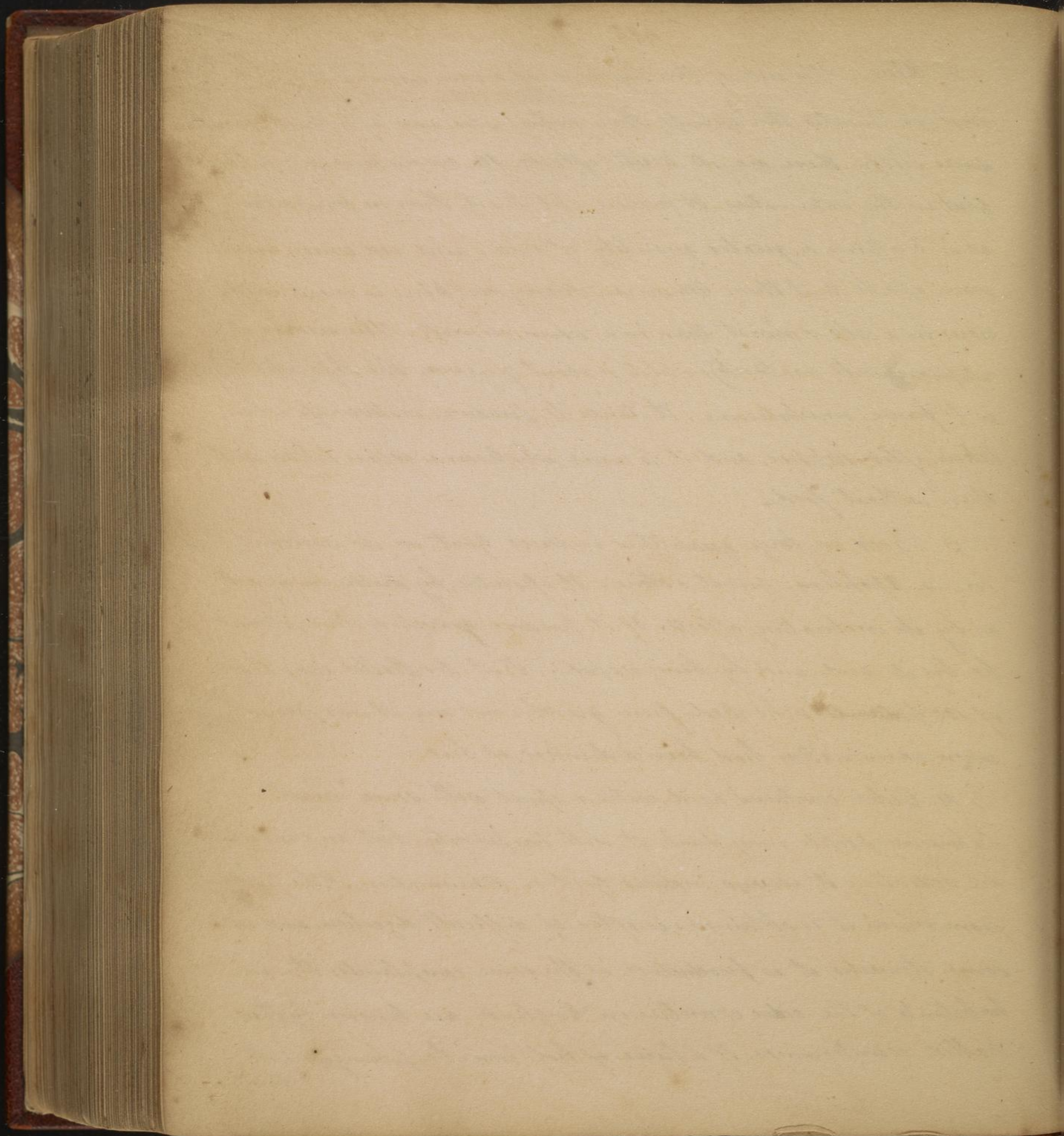


2. The
first
lives
first in
as it can
some after
was in
appears
is to pro
taken a
then was
3
lives
by it
by it
100
upon
4
Labrador
receded
from
some
habitant
pallid

2 Wine. The use of this liquor is of a very ancient date; it first exhilarates the spirits, then intoxicates, and afterward produces sleep: these are its acute effects. Its cronic ones are fat, & gout in the extremities. It is more apt to act thus in proportion as it contains a greater quantity of acid; and red wines are more apt to do it than Madeira, Sherry &c. Wine is more injurious in a cold & moist, than in a warm climate. The nearer it approaches to maturity, which is about 7 years, the less apt it is to prove unwholesome. It tends to produce costiveness when taken after supper, and it is more wholesome when taken with than without food.

3 Beer in large quantities induces Gout in its various forms, Apoplexy, gravel & stone. It operates by distension as well as by its inebriating effects. If it produce gravel & stone, it must be by its acid, and by being rapid. But Dr Haller says that of 100 patients who died from gravel, not one it was found upon examination had been a drinker of beer.

4 Cider contains acid, water & spirit with some must. — Labouring people may drink it with impunity, but in some who are sedentary it always induces Gout or Rheumatism. The fruit from which it is obtained is often of difficult digestion, and in some stomachs it is productive of the same complaints: the inhabitants of the cider countries in England are known by their pallid countenances. If a piece of hot iron be plunged into the



the other
these
into by
5. A
these
that the
Lyons
all my
from the
the act
have for
of the
was dead
my prop
equally
employ
we a
self to
says he
he is
Who
had
he is

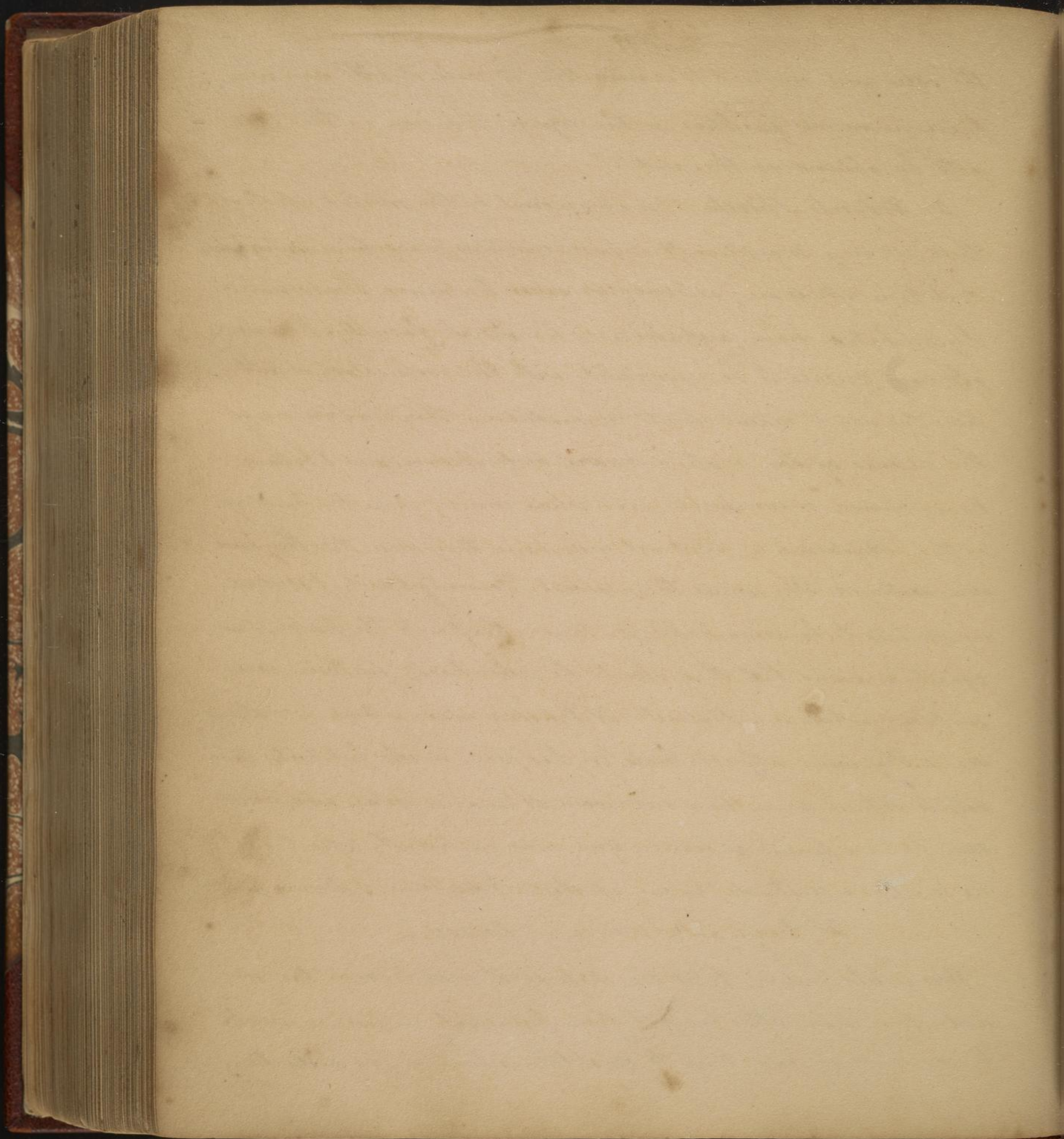
the cider and suffered to remain till it cools, it will remove these pernicious qualities in the liquor. The iron in this case acts by obtaining the acid.

5 Ardent Spirits. For an account of the morbid effects of these see my Inquiries. It is proper in this place however to observe that their effects are experienced upon the nerves, bloodvessels, - Lymphatics, brain, and also upon the moral faculty. I wish all my pupils to be acquainted with the evils which result from the use of ardent spirits in medicine. They compose one of the articles of the materia medica of Dr Brown, and I believe have poisoned many people, even when coming from the hands of their Physicians. - But not only have they done this; they have even destroyed Physicians themselves! Formerly I said I wished my pupils to be remarkable for their attention to the pulse, I am equally anxious that they should be remarkable for their rare employment of ardent spirits. If therefore at any time you should see a Physician with rose buds in his face, or who habituates himself to taking drams in a sick room, or in any room, and who says he is a pupil of mine; you may confidently assert that he is either a pretender or an apostate. I disclaim, I disown him.

Of Dress as a source of disease -

Who would believe that the dress first used to cover the nakedness of man after his fall from primeval innocence, would be so employed as in time to constitute a part of his destruction?

Of this



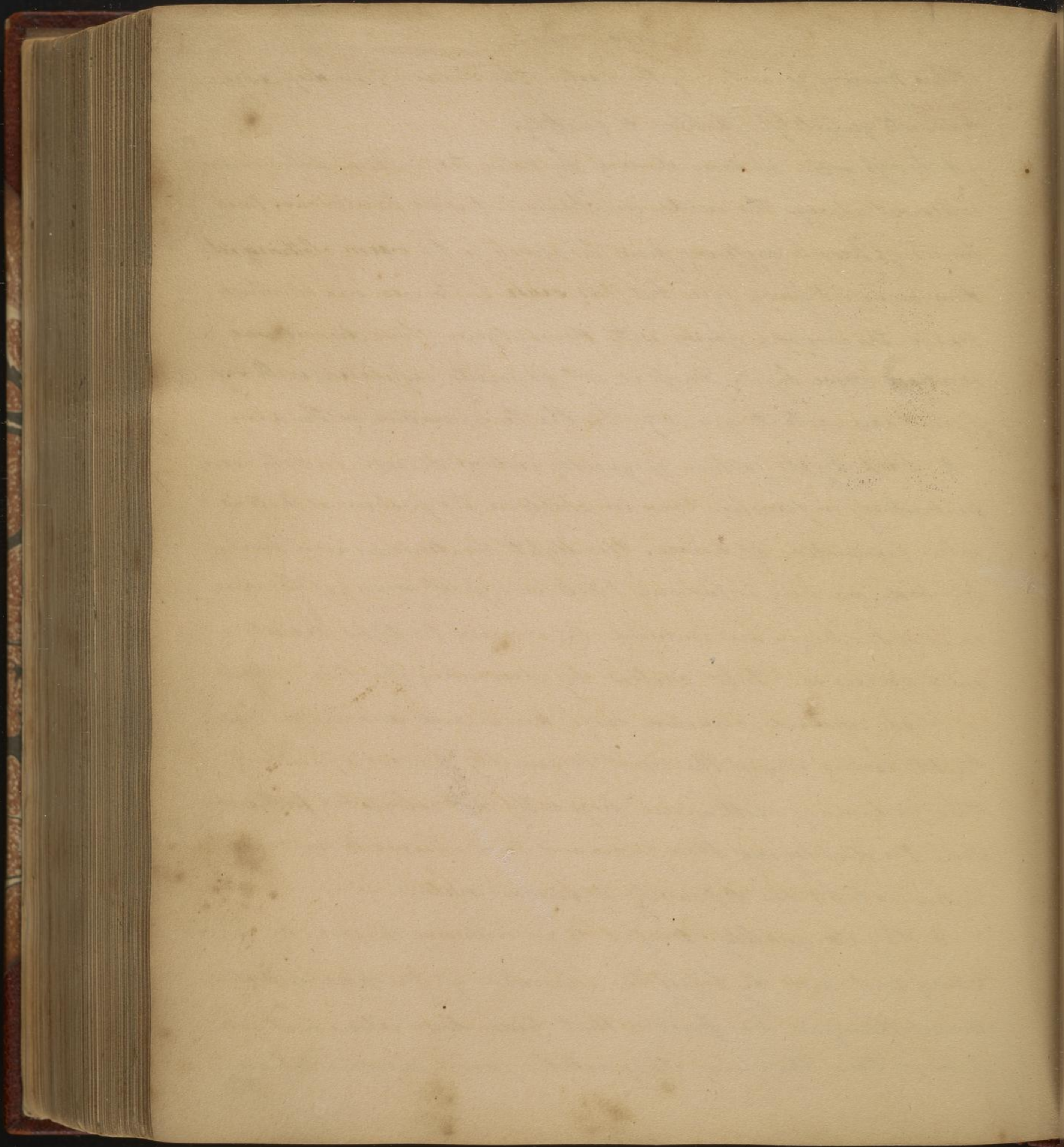
This
from
12
is above
times
from
was in
condem
ficient
22
particular
often
the book
cases of
short
of blood
light
the
on
Ladies
3
training
Count
a long

This however is certainly the fact. The diseases from dress, arise from its quantity, fashion & quality.

1 Dress often induces disease by being too tight, and this indeed is almost always the mode in which it proves pernicious. Instances of people suffering from too much or too warm clothing seldom occur. I have seen but two such instances, one of which was in the case of a person with Hemoptysis, whose disease was rendered worse by it. Dress is not generally regulated with sufficient care, as to its quantity, by the temperature of the air.

2 Dress by its fashion frequently induces disease in both sexes, particularly in females. Even in children the fashion of dress is often productive of disease. Too tight ligatures on any part of the body are very injurious. I believe a great many of the diseases of the brain are induced by wearing too tight cravats, shirt collars &c. Tight garters by preventing the free return of blood upward, occasion large knees and anasarcaous legs. Tight lacing round the waist frequently produces fainting. The fashions of clothing are frequently not calculated for the season. In displaying their forms and their charms to our sex, the Ladies exhibit the depravity of human nature -

3 By its quality. Dress acts in inducing disease, by retaining heat, and by being the repository of perspirable matter. Count Rumford has proved that Eider down retains heat for a longer time than any other article; furr & sheeps wool are the



the most
to be w
from pe
not as w
a long t
implic
dean.
new.
I have
of shap
Hain
thom
Patch
just me
Ioul
like the
Bri
we can
in cons
Prison
only for
to the a
to which

the next. Sheep's wool, silk & cotton are the most healthy articles to be worn next the skin. Flannel keeps up a gentle and uniform perspiration, and retains the heat of the body, when it is wet as well as when it is dry. This and silk may be worn for a long time next the skin without breeding vermin, or inducing disease, provided the other articles of cloathing be kept clean. To this cause is to be ascribed the healthiness of the Chinese.

I proceed to mention the origin of some miscellaneous articles of dress.

Hair powder was first employed in Poland to conceal a loathsome disease of the hair, the Plica Polonica.

Patches on the face are the products of intemperance, and were first made use of to hide pimples.

Bandaged Neckcloths were first introduced by King Henry to hide the deformity of a scrophulous neck.

Boots were originally employed to hide the crooked legs which were common among the nobility in the time of King Charles I in consequence of the Rickets.

Of the diseases induced by Poisons.

Poisons are subtle substances which taken in small quantities only produce disease & death. They are relative, 1st According to the animal by which they are taken. 2nd according to ^{the} part to which they are applied. 3rd according to the dose.

Poisons

+ when they act gradually produce fevers, oppression
gangrene &c

Poisons are divided into Animal, Vegetable, Mineral and aerial.

1 The Viper & the Rattlesnake afford the most violent of the animal poisons. These induce, in the animal bitten by them, a sudden prostration of excitement, and gangrene in the part bitten. Poisons all act by a stimulating quality, producing according to their violence, different diseases. Many animals excite a local disease by matter effused into a part, and when death occurs it is from the disease or inflammation extending from that to some vital part, or from the matter acting as the exciting cause of disease. I have known the bite of a musketto on the arm to excite miasmata into motion and produce the yellow fever, the consequence of which was the death of the patient.

2 The Vegetable poisons are more numerous. They are Stramonium, Hemlock, Foxglove, Opium, Nightshade, Hemlock &c. There are many others which are less deadly as the Phytolacca, and the Fagopyrum or Buckwheat when it is just rising out of the ground. Buckwheat is nourishing to man but poisonous to some other animals. Some act only on the skin as the Rhus Radicans &c.

3 The Mineral poisons are Lead, Arsenic, Copper &c.

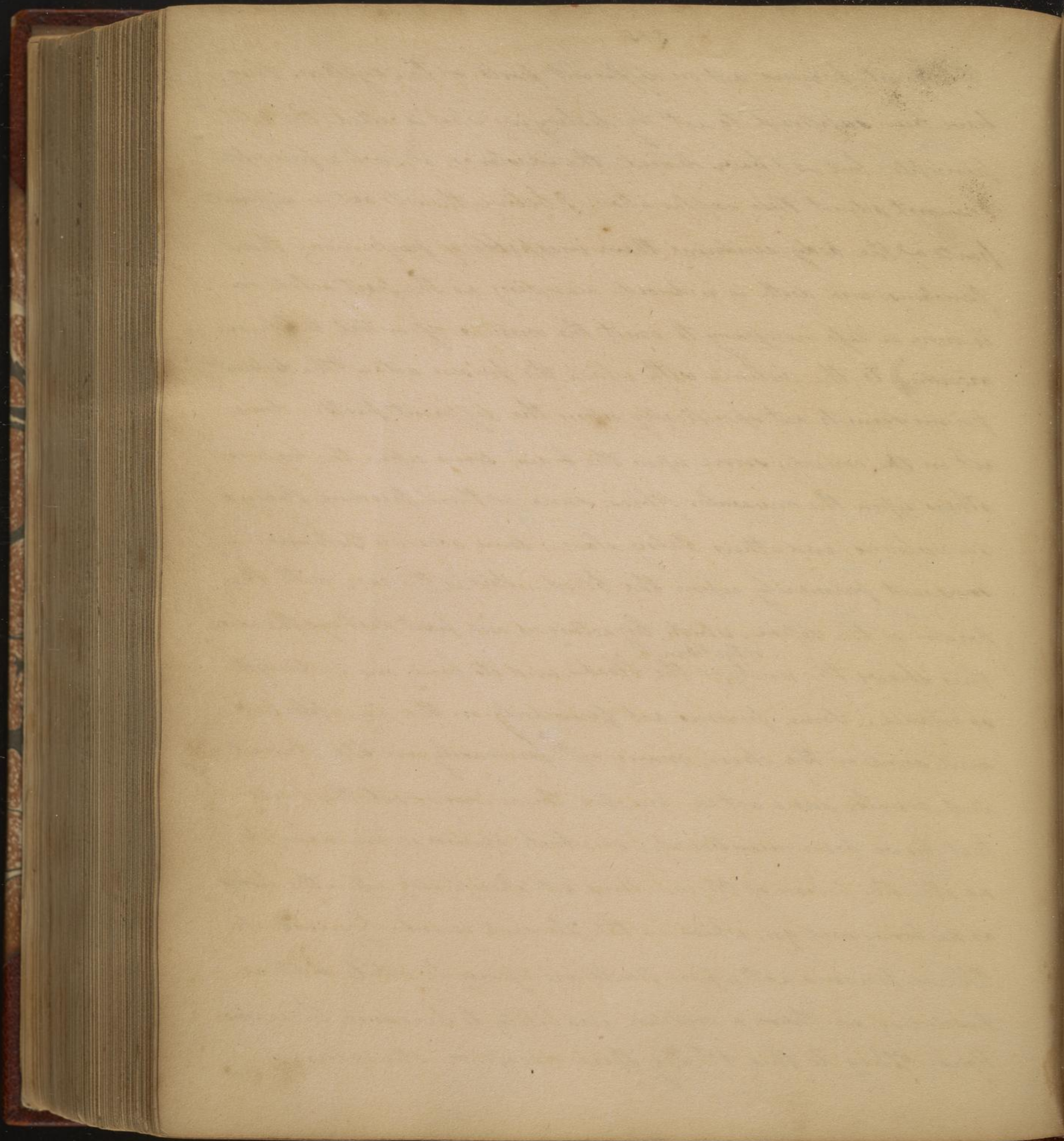
4 The Aerial poisons are Carbonic acid Gas, and the different kinds of air which are unfit for respiration. These also are relative.

Different

+ some authors say they act on the muscular fibres
alone

P. Stramonium de Some act on the
arteries as Foxglove The uterus will produce it;
It is remarkable that it does not affect the mind.

Different poisons act on different parts of the system. They have been supposed to act by destroying what is called the vital principle, ⁺ but as I have denied the existence of such a principle, I cannot admit this explanation. I believe them to act on different parts of the body, rendering them incapable of performing their functions; and death is induced according as the part acted on is more or less necessary to emit the motions essential to life; or according to the violence with which the poison acts. The different poisons seem to act specifically upon the different parts. Some act on the mind; some upon the brain; ⁹ some upon the nerves; others upon the muscular fibres; some of them produce Palsy & Convulsions, and others Palsy alone; some occasion Tetanus; — some act primarily upon the blood, this is the case with the poison of the viper, which by acting on one part destroys the whole, this shews the unity ^{of the fibrin} of the blood, and its being one continued substance. Some poisons act primarily on the lymphatics, and some on the skin; many act primarily on the stomach and bowels; some act on one, two, three, four or all the parts that have been mentioned, of which Opium is an example, as also the poison of Plague. Some act specifically upon the lungs as carbonic acid gas, which in the stomach is intirely innocent. These poisons act upon parts necessary to vital motions, producing in them a sudden inability to produce these motions. They do this 1st By their excessive stimulus. 2nd



2nd B
which
induce
ed by
when
for the
which
into the
its own
we for
little
as the
to spe
of
and the
some
wrote
this
which
out
the
induc
crone

2nd By mixture with the parts necessary to emit the motions which are essential to life. Certain bodies possess the power of inducing motions peculiar to themselves, and these are destroyed by certain specific substances; this may be the cause of death when it is induced by poisons. This idea may be illustrated by the new unions that take place in chemical operations, and which differ essentially from the original principles which enter into their composition. Thus mercury united to gold destroys its malleability and ductility. Zinc & Copper when separate are both insensory, but in combination they form an elastic, brittle, sensory compound. By considering animal life as the effect of impressions, we can easily believe poisons to operate in the manner I have shown.

Of Slow Poisons. I believe that there are such substances and that they are generally of a vegetable nature. They induce something like a hectic fever, which gradually exhausts & wastes the powers of the system, and brings on death. It is in this way that I would explain the action of those poisons which are sometimes made use of by the negroes of the southern states for the destruction of their masters. Thus the miasmata which are the cause of yellow fever, may induce death in a short time, but they sometimes bring on chronic diseases.

Of foreign matters introduced into the Body.

Worms

+ Lemaire says they are discharged from the
prison -

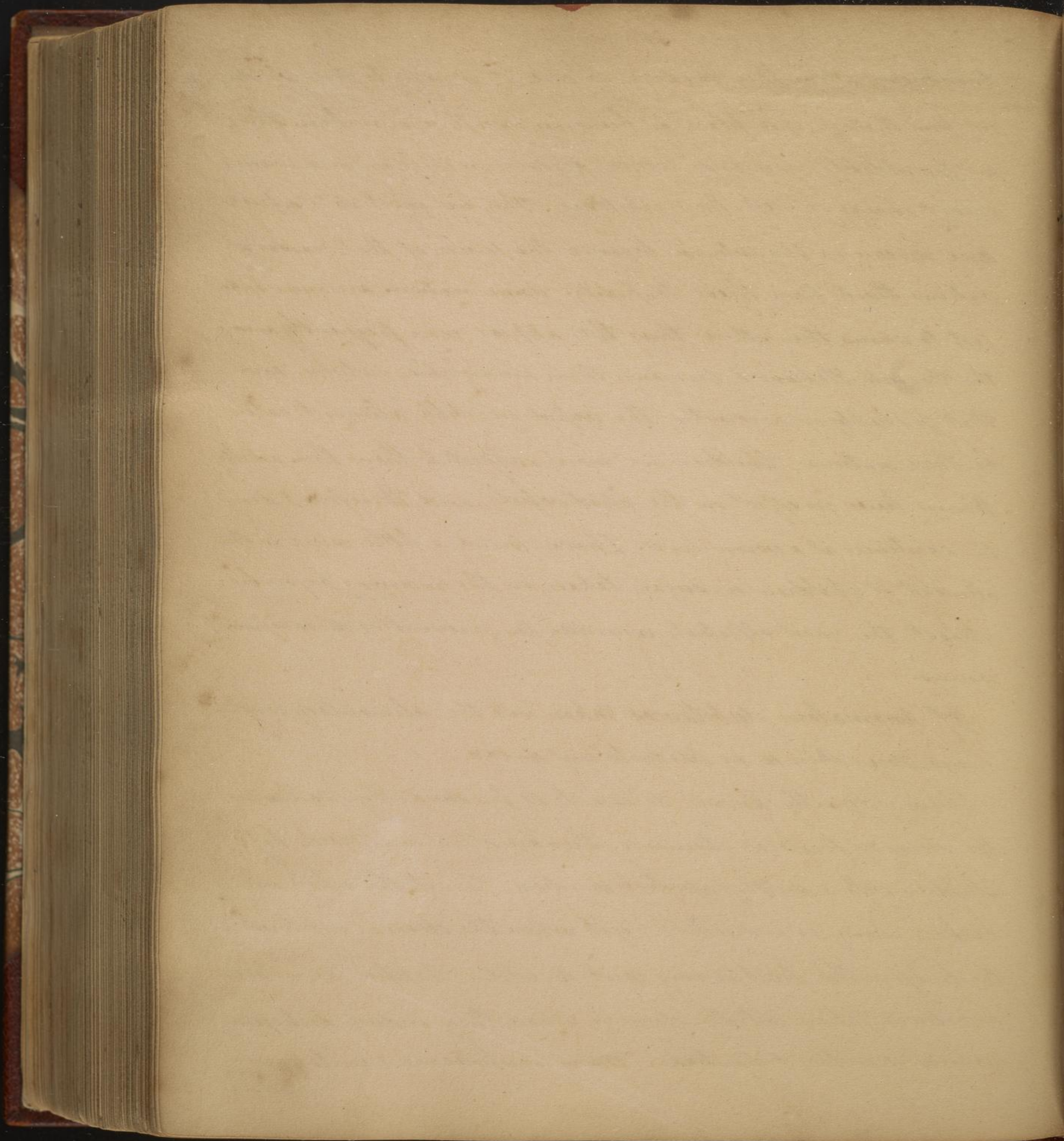
Worms. These are found in various parts of the body. 1 In the Liver. 2 In the urinary bladder, and that without exciting disease and are discharged without pain. These are of a bright red colour. 3 They are sometimes found in the throat. 4 In the maxillary & frontal sinuses. There is upon record a case of a lady who discharged a black worm, two inches long, which had been originally snuffed up from a rose. 5 In the ear. 6 In the brain. 7 The most common situation for worms is in the alimentary canal. They are found there of three kinds, viz the Lumbrici or round worms, the Tenia or tape worm, and the Ascarides, all of which are destroyed by the same substances. Worms are born with us. The round worm is found in the human body only. The tape worm consists of different joints & is of very great length. I once attended a patient who had discharged two hundred feet of a Tenia, & who afterward discharged as much more. I believe the liquor of the womb, and ~~next~~ ^{& aliment} the mother's milk, are the mediums by which they are conveyed into the body. There can be no spontaneous generation of them, and that they exist in the fetus before birth is proved by their being found in now born infants, & in abortions. From the universality of their appearance in all young animals, and in children, I think they necessarily exist in them, and I believe that children are sometimes affected with disease from a want of them. Perhaps they are of use in consuming the superfluity of aliment. (I speak here only of the Lumbrici)

Lumber
ing for
the form
cases &
duce the
valuable
just to
the free
that for
by those
Horns
the ex
stimen
at last
wound
of
Lungs
I have
the sta
children
broken
the pen
sometime
mausea

Lumbricus;) when they produce disease it is owing to their wandering from their proper place or being in excessive numbers. These are formidable causes of chronic diseases in children, and in such cases I always suspect their existence. They are most apt to produce disease in the autumn, because the fevers of that season awakens them from their torpidity. Some nations are more subject to worms than others; thus they appear more frequently among the French, Italians & Germans, than among other nations, and that probably on account of the rapid vegetable aliment eaten by those nations. Children are more subject to them than adults. Worms have no effect on the blood vessels, and therefore I deny the existence of a worm fever. I have found a little wine in the aliment of children, or sugar taken in the morning before breakfast, the most effectual remedies for preventing disease from worms.

Of Anomalous Substances taken into the alimentary canal, Lungs, Nose, Skin &c as productive of disease.

I have frequently known disease to be produced by swallowing the stones of fruits, as cherries &c. These are often swallowed by children with a view of assisting digestion. Though the whole unbroken cherry is indigestible, yet when the skin is ruptured the pulp of this fruit is very easily digested. Copper coins are sometimes taken into the stomach, where they induce distressing nausea, vomiting & diarrhea. Many unwholesome & irritating substances



subtle
large
face
How
those
let
quell
in the
incons
for com
with a
cation
I st
from
had
out
table
Child
if they
fore
splen
me m
parts
induc

substances are taken into the lungs, from whence they are discharged by coughing; but when this is not the case, they produce difficulty of breathing, and sometimes sudden death — Flour often accumulates in the lungs of millers, and flux in those of the people who work in that article; the same also takes place with the powder of gypsum in grinding it. Pins and needles are sometimes introduced into the body during sleep, or during the action of strong mental impressions, which induce insensibility to pain, and continue there without being extracted for some time. I attended in consultation, a son of Mr. Morris, with a sore in his groin which was not benefitted by any application, untill a pin was drawn from it, when it readily healed.

I attended a lady with a diseased uterus, there was a discharge from it, sometimes blood & sometimes water; all my prescriptions had no effect. She was finally cured by a pin thrusting itself out from the vagina and causing a great deal of pain. It is probable she had swallowed this pin sometime before by accident.

Children often thrust grains of corn, coffee &c into the nose, when if they be not soon extracted they cause inflammation, and dispose to Polypus. Wounds made with blunt instruments and splinters produce Tetanus, and that most frequently when they are made in tendinous parts, from the slowness with which these parts take on inflammation. Shot, Bullets & powder frequently induce disease after remaining a long time in the body. 9

I know
in the
had been
past due
point
several
of
the
effects
within
unless
back
are m
not h
human
the dis
I Col
mat
and a
occu
There
naps
ity of
tion

I knew a young man who was affected with a delirium every two or three years until he discharged a few shot from his feet, which had been lodged there when he was young. The substances which produce disease by being applied to the surface of the body, are paint & pomatum; the former head ache, the latter nervous diseases.

Of Retained Excretions, as the cause of disease. The feces when retained for a length of time are injurious, their effects being various in different people. Some go for a long time without any inconvenience from the retention of feces, particularly sailors. I knew a man who went from here to Lisbon & back again without having a stool the whole of the time. There are many instances of people going a week & even a month without having a stool and that with impunity; but in general the human body seems to require a fecal evacuation once every day. The diseases induced by a retention of feces are, 1 Headache, 2 Siles, 3 Colic, from an accumulation of feces in the intestines, 4 Inflammation of the bowels, 5 a suppression of the secretion of urine, and also of the evacuation of it by the mechanical pressure of accumulated feces. 6 Ruptures of different kinds. 7 Fevers. There seems to be a connection between longevity and a readiness in evacuating feces. Dr. Haller ascribes in part, the longevity of birds, to the ease with which they perform this operation.

the
duces
M
spirat
the sy
vating
ation
pult
excise
den tr
spirat
n sm
man
dianha
the
they a
is obs
When
a reg
file
Hibm
of the
Nac
lacin

The urine when it is long retained in the bladder, produces many inconveniences, as Gravel, Stone, Hemorrhoids &c.

Many diseases are ascribed to the suppression of the perspiration. I formerly observed that this only does harm when the system is too weak to carry it off by other modes of evacuation, as by the lungs or bowels. Obstructions of the perspiration are produced by moist air, too much food, or food difficult of digestion, great mental exertions, neglect of due exercise, wet or filthy cloathing, damp sheets, night air, sudden transitions of heat & cold &c. The effects of obstructed perspiration when not discharged by the kidneys, lungs, bowels or some other evacuation as an Issue, or in a menstruating woman by the uterus; are lassitude & pains in the limbs, coryza, diarrhoea, fever, cutaneous eruptions &c.

Obstructions of the excretion of Bile produce various diseases. They are different according as it is cystic or hepatic bile that is obstructed. If it is cystic it produces languor & costiveness. When the obstruction is in the ductus communis it causes a regurgitation of the bile & the black or green jaundice. Black bile I believe to be one cause of the black colour in negroes.

Obstructions of the bile also produce itching & a yellow colour of the skin, emaciation, schistus of the uterus, and Dropsy.

Retention of the Semen produces no disease when no lascivious ideas are indulged; but when they are it induces
ces

ces Ep
of se
Rea
male
the
highly
lances
dicine
history
cution
H
To
of ex
becom
all the
health
impro
can
in dis
lifer
was pe
of so
temp

ces Epilepsy, Madnes, priapism, involuntary discharge of semen, and even death.

Retention of the MENSES produce the majority of female complaints, whether of the acute or cronic kind.

The suppression of the menses produces diseases of a highly inflammatory nature, which stand in need of the lancet, and not of Pennyroyal tea & other stimulating medicines termed Emmenagogues. I have thus given a history of the diseases produced by a retention of the excretions, and shall now speak,

Of diseases from too much Motion or Rest.

Too much motion induces debility varied by the kinds of exercise; the flesh becomes of a dark colour, & the spleen becomes distended. - Too much rest induces debility & all the diseases consequent on it. It is also unfavourable to health by suppressing perspiration; hence the necessity of imposing labour upon man after his fall, and making him earn his bread by the sweat of his brow: this was a blessing in disguise. Women suffer less than men from a sedentary life, and hence among the Romans, the business of Sailors was performed by women -

Of Sleep and Waking in excess.

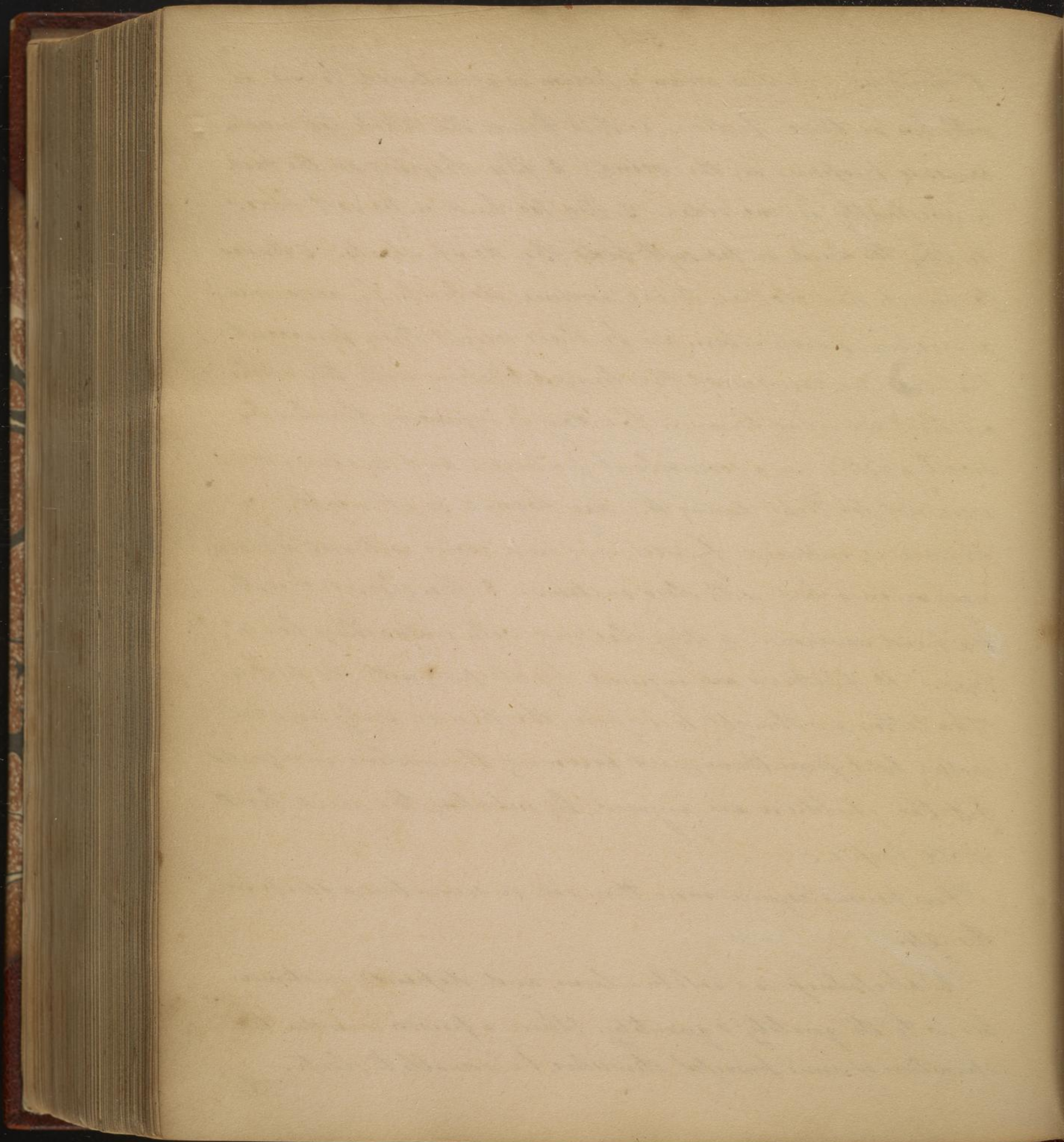
Too much sleep induces universal debility, fatness, torpor, fatuity & insanity. Disease is induced by sleeping.

1st W
with
causing
a com
H. B
time
a prop
the f
on the
well
were
Bisc
may
the h
two.
the
acting
but
of old
few
the
as
opera

1st Without a pillow when a person is accustomed to one, or with two or three pillows, as this bends the neck too much, causing pressure on the veins. 2 By sleeping on the back or constantly on one side. 3 By too hard or too soft beds. 4 By too hard or too soft beds By damp sheets. 5 Under too much bed clothes; these induce debility by occasioning a profuse perspiration, and by their weight they prevent the free expansion of the lungs. 6 Sleeping with the clothes on that we wear through the day is injurious, the limbs swell a little in a recumbent posture, and ligatures which were not too tight during the day become so at night. 7 Disease is induced by sleeping in a room without a chimney, or in a bed with close curtains. 8 By sleeping with the head covered. 9 By sleeping with unhealthy bedfellows. 10 Children are injured by sleeping with old people. The latter are thought to injure the former only by abstracting heat from them, and becoming themselves invigorated, but the children are injured by inhaling the acrid breath of old people.

Few persons require more than six or seven hours sleep in the 24.

Wakefulness is a relative term, and depends on stimulus as to its quality & quantity. Where a person is under the operation of some powerful stimulus, he is unable to sleep. The



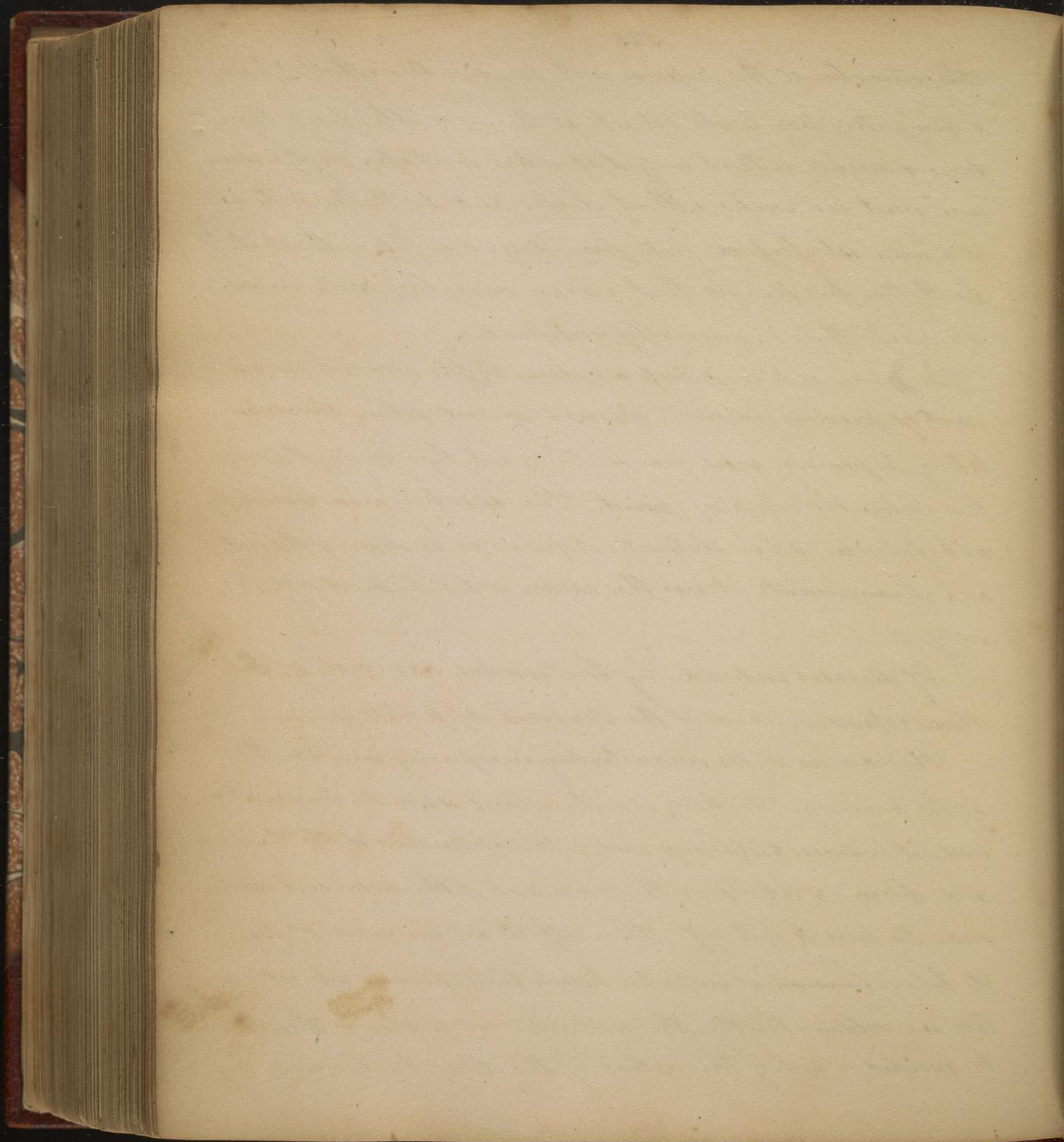
the
a
days
will
of a
the
life
the
want
tating
time
pake
and
mity
Under
of the
used
and
sions
its be
late
be

The stimulus of the passions will produce this effect. I knew a gamester who would sit up at the card table, two or three days & nights without any disposition to sleep. Dr Boerhaave once went six weeks without sleep; and Dr Haller tells us of a man who passed forty five days & nights without it. Dr Haller has proved that a man may live with much less sleep than is generally supposed.

The causes of Wakefulness are some light, unusual noises, want of previous exercise, fevers of violent action, the debilitating passions of grief, fear &c. They act by reducing the system below the sleeping point. The appetite is increased by wakefulness. When obstinate it produces swelling of the feet, and derangement; it was the cause of Dr M^r. Brides insanity

Of diseases induced by the undue exercise of the Understanding, and of the Venereal Appetite.

The exercises of the understanding necessarily involve those of the memory. Thinking is a stimulus & when too long continued it induces Costiveness and Colic, obstructions of the liver and spleen, weakness of the brain and of the nerves. It occasions the hair to fall off. These effects are increased 1st By its being pursued at improper hours; those persons who sit up late are seldom healthy; the midnight Lamp should therefore be avoided. 2 By the nature of the study, particularly by its



its being disproportioned to the persons age who is engaged in it.

Thus boys are very apt to be injured by the study of the languages and of grammar at too early an age.

If the understanding be not exercised it will induce debility both of body and mind: but I believe the understanding may react and in this way produce disease. The passions also are increased by the understanding not being exercised. An excessive exercise of the ~~understanding~~ imagination produces madness; and hence the frequent insanity of Poets.

The memory is impaired by too much exercise in early life. The moral faculty is diminished for want of exercise, and conscience is impaired by habits of vice. Fear induces a morbid sensibility of the moral faculty, as we see in the extreme care with which some people answer questions, for fear of saying something that may be untrue.

The believing faculty is suspended by excessive joy.

Of the effects of the Passions.

These are divided into passions & emotions, or acute & chronic. The former producing stimulating & positive effects; the latter which are sedative act negatively. Thus Hope is a stimulus, and despair a sedative: but the latter is only an abstraction of the former. Sometimes the passions are mixed and then they produce different effects, as when ambition is combined with fear

Love

Love
with
afternoon
accom
legacy
mon
language
Morse
Hysteria
joy
sudden
mad
joy is
her of
America
sunny
sudden
prosper
lower
person
had
intens
ted
Ang

Love acts differently according as it is combined more or less with fear or hope. Those who are disappointed in love, will afterward continue their esteem if their rejection has not been accompanied anything to offend. Hence Dr Gregory in his legacy to his daughters tells them, if they are addressed by a young man whom they intend to reject, to give a refusal in positive language, that he may have no possible hopes of future success. Unsuccessful love produces Dyspepsia, Hypochondriasis, Hysteria, Melancholia &c.

Joy is a powerful stimulus, sometimes producing syncope & sudden death. It occasions tears & a squeaking voice, it induces madness & Mr. Bruce says it rendered him thirsty. Political joy is a very strong stimulus, and has produced death in a number of instances. The old door keeper to Congress during the American Revolution was so rejoiced to hear of the capture of the army of Lord Cornwallis that he suddenly fell down dead. Sudden death from all the passions is most remarkable in old people. When joy does not occasion death it is very often followed by a very great depression of spirits, and in some cases persons have committed suicide in a short time after they had gratified the dearest wishes of their hearts. Joy is most intense when the excitability has been previously accumulated by fear, and hence the expression of "the joy of fear".

Anger excessive either in degree or continuance is forbidden

den in
sun
and de
in pto
flow g
in pto
maku
boys
A m
the g
Ga
it m
produ
penic
produ
side.
below
sleep
of the
it sim
the co
like
the a
check

den in scripture, "Be angry and sin not" and "Let not the sun go down upon your wrath". Anger is a powerful stimulus and determines the blood to the brain, producing a variety of symptoms, such as a redness of the eyes and face, an increased flow of saliva, volubility of the tongue, or a suspension of its motions, an increase of bodily strength, apoplexy & death. A shoemaker of this city died through anger, excited by a parcel of boys blowing tobacco smoke through a key hole into his shop. A Miser also fell dead whilst complaining to a taxgatherer. The effects of anger are different when it is combined with fear.

Grief when sudden produces Syncope and ^{Asphyxia} ~~Asphyxia~~, but it more commonly acts like a slow poison upon the system producing Dyspepsia &c. When grief is moderate it is accompanied by tears, but when it is very violent they are not produced, they appear however after ^{the} degree of grief begins to subside. There is a certain weeping point in the system, above or below which tears refuse to flow. Persons in deep grief often sleep more soundly than when this is absent, in consequence of their being depressed by grief to the sleeping point. When it sinks the system below the sleeping point wakefulness is the consequence. Grief produces changes in the countenance like those from old age, wrinkling the forehead & depressing the angles of the mouth, and making the prominences of the cheeks project in a greater degree than usual.

Fear

Hea
ne
chaz
ming
as ad
and in
ne lig
feed
cause
person
to ma
seats
histori
son P
by con
to sta
full of
quence
traged
ing on
the de
portion
other
long

Fear in many instances produce disease. The effects of it are paleness, tremors, a quick or frequent pulse, copious discharges of feces & urine, thirst, asphyxia, bloody sweats, hastening of labour pains, Aphonia, Mania and death. Fear induces actual pain; and this I think it does by inducing debility and inviting excitement to the debilitated part. These effects are less when least is said about them. Hypochondriac patients feed their pains by conversing upon them, and from the same cause operating the diseases are rendered more sensible to the persons who labour under them. Physicians should not make too minute ~~the minute~~ inquiries of their patients about the seats of their diseases, nor pay too much attention to their histories of them, nor visit them too frequently, for the reason I have mentioned. Venereal desires are also strengthened by conversation, and so is avarice. Fear often causes the hair to stand upright, renders it gray, and sometimes makes it fall off. A man's hair became gray in one night in consequence of excessive fear produced by the earthquake that destroyed Lisbon in 1755. Fear also acts upon the mind, lessening or destroying the memory; and sometimes even annihilates the desire of life. The effects of fear are more violent in proportion as it is accompanied with shame, speaking on some other subject than that of fear diminishes the effect; hence boys when passing a grave yard at night, diminish their fears by

by tal
the
with
mules
of life
meas
explor
at co
He
Com
of the
of the
An
if gra
disap
of sw
depre
the
diseas
on clo
abstra
servan
ing &
ous

by talking of something else than the surrounding objects. Fear like all the other passions is subject to combinations with some of them. Fear produces debility and an accumulation of excitability, and this being acted on by the desire of life and glory, produces violent exertions which are in some measure convulsive. To this cause are to be ascribed the great exploits which are sometimes achieved in battle by the greatest cowards.

Terror produces different effects according to its combinations.

Envy acts like a perpetual blister. I believe that many of the diseases of high life are the consequences of indulgence of this passion.

Ambition is an inflammatory fever of the mind, which if gratified is attended with no injurious effects; but if it be disappointed it is apt to induce chronic diseases. A Minister of Sweden once died of a Colic in consequence of his being deprived of his place.

Avarice is of different degrees. It is chiefly productive of disease when it robs the person who indulges in it of food or cloathing, or when it loses the object of its affection. Avarice abstracts from the love of country, neighbours, friends, relatives, servants, wife & children, and lastly of ourselves. The following Epitaph was written upon the tomb stone of a avaricious Archbishop of Canterbury.

Here

It is
a sum
fluence
tion
men
of
a p/p
of
of reas
diseas
Ad m
is of
ries a
real
a pro
Emp
by the
min
diseas
by it
comes
rect

Here lies his Grace in cold clay clad

Who died for want of what he had.

It is only by a knowledge of the effects of the passions in a simple & compound state, that a man can acquire an influence over the minds of those who are under his subjection. They should be more studied by Schoolmasters, Clergymen, Parents and Legislators.

Of the effects of the indulgence of the Venereal appetite.

This seldom induces disease when regulated by the dictates of reason & religion. The venereal appetite becomes a cause of disease, 1 When it is indulged in too early in life, or 2 By old men. An old man seldom injures himself when his wife is of the same age with himself, but when an old man marries a young woman, he is very apt to go to excess. 3 The venereal appetite is injurious when increased by obscene books or prints, or by certain medicines as Cantharides. One of the Emperors of Germany died of an obstinate priapism induced by this medicine. 4 When it is gratified by the vice of onanism. This produces an indisposition to matrimony, & many diseases are also the consequence of it, the memory is impaired by it, the eyes are weakened, the person indulging in it becomes melancholy, avoids company, has frequent nocturnal erections, emits semen from slight irritations, the flesh becomes
soft

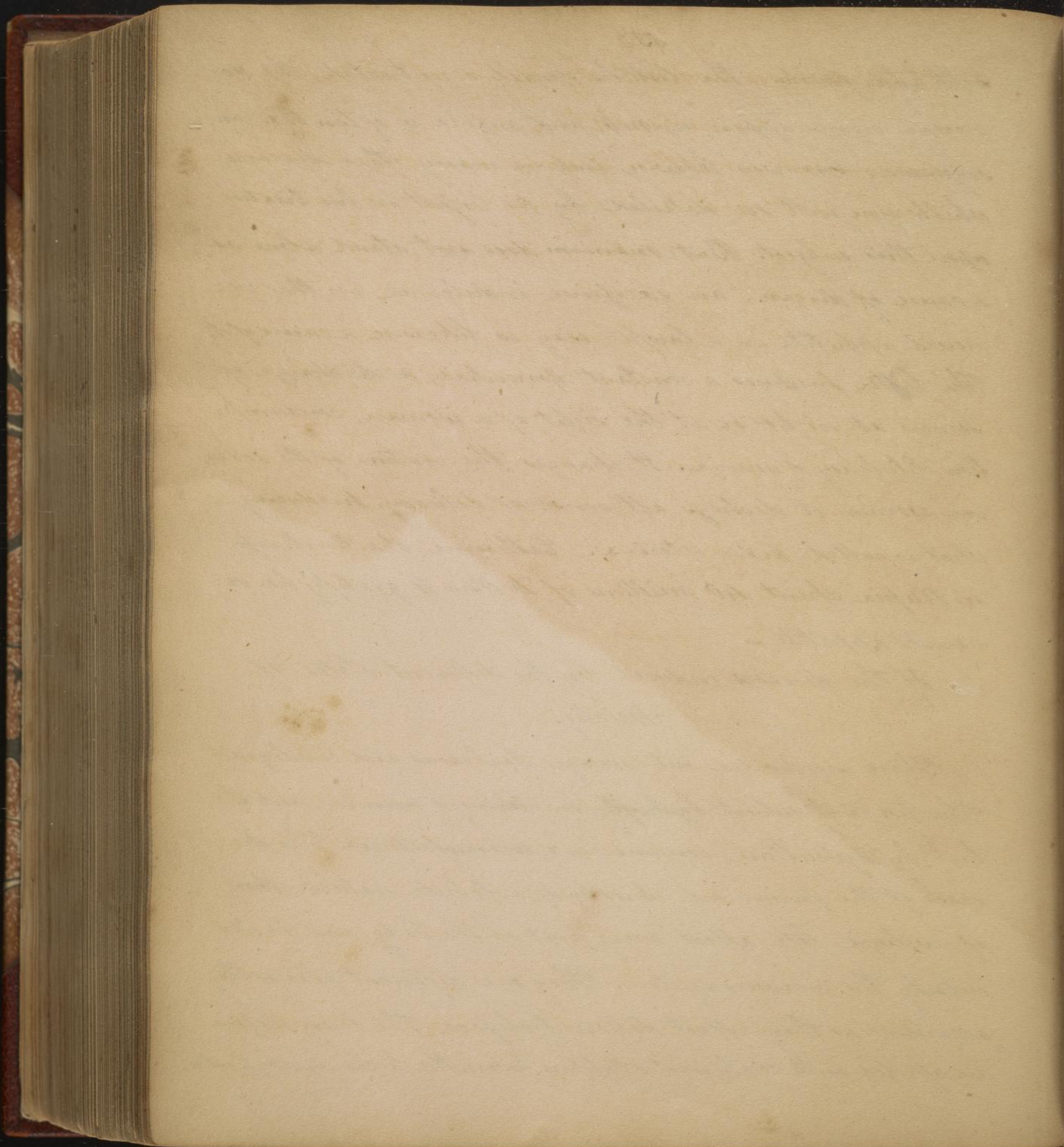
* The first subsist by fishing, hunting &c. the second by pasturage,
and the third by agriculture &c.

soft and flabby, the testicles small & contracted, the venereal organs appear numb, and mania is often the consequence. Onanism likewise induces many other diseases, which you will see detailed by Dr Tissot in his treatise upon this subject. But onanism does not stand alone as a cause of disease, an excessive indulgence in the venereal appetite in a lawful way is likewise a cause of it. The latter produces a constant gonorrhoea, a discharge of semen at night or at the sight of a woman, consumption, Epilepsy & mania. It changes the nature of the sexes; in women it destroys all sense of delicacy, producing what is called *ardor uterina*. Catharine, the Empress of Russia spent 46 millions of Dollars to gratify her venereal appetite.

Of the diseases induced by the different states of Society.

These are divided into savage, barbarous, and civilized. The two first subsist chiefly by fishing & hunting, and the last by agriculture, commerce & manufactures. The diseases of the farmer are chiefly of a febrile nature; those of civilized life affect every part of the body, and particularly the nervous system. They are different also according as they affect different classes. The lower classes are affected with malignant & typhus fevers, the higher ones by Gout.

of



of
Go
n fr
of des
the ob
shave
among
ulus
des on
opera
the
happ
out
berty
unfa
In
may
and
fect
then
bea
Rep

Of the diseases induced by different forms of
Government,

Governments are either despotic, half despotic, half free or free as in Republics. I formerly mentioned the effects of despotic governments upon animal life. The absence of the stimulus of liberty induces more frequent deaths among slaves than among freemen, and longevity is less common among the former than the latter. The absence of this stimulus is made up by the vicarious ones of food &c. Slaves possess more irritability and less sensibility; they therefore bear operations with more fortitude. And hence the irritability of French character. Limited Monarchies induce strong passions which frequently act with such force as to wear out the mind. The alternate influence of slavery and liberty, produces alternate debility & excitement, which are unfavourable to health.

In free Republican Governments liberty ^{operates} ~~acts~~ as a gentle, uniform stimulus, which is friendly to health and life; and the security of property prevents the debilitating effects of fear. Not only moral and political happiness then, but health & longevity are connected with Republican governments. A Physician therefore who is not a Republican must renounce the principles of his science.

Of

ment
weather
they
them
to few
vers.
beach
more
with
to the
to do
they
and
subject
the
vite
heat
factu
also in
frozen
ing
of the

Of the influence of different Employments.

The first employment of man was agriculture, & the next the formation of a shelter from the inclemency of the weather. These occupations are friendly to health, but even they have at length been made to induce disease. First Farmers and Carpenters working in the open air, are subject to fevers and accidents. 2 Day labourers are subject to fevers, sore legs &c. 3 Servants are liable to catarrhs & fevers. Coachmen, from being obliged to wait at doors are still more subject to them. 4 Sailors are liable to be affected with scurvy, and both these & Soldiers are very subject to Rheumatic complaints. 5 Manufacturers are liable to disease from close air, and from the materials in which they work. Watch & Clockmakers suffer from the want of air, and from the too much exercise of their eyes. Weavers are subject to Hypochondriasis, Dyspepsia, Hysteria, Costiveness &c. The posture & confinement of Shoemakers and Tailors invite to disease. Smiths from their alternate exposure to heat & cold are subject to inflammatory complaints. Manufacturers are likewise rendered unhealthy by the materials in which they work, thus Type foundlers & Printers are frequently injured by working in lead. Bakers from being in damp cellars and from their exposure to the dust of the flour, are very subject to pulmonary complaints.

H. A. M.

From
power
to be
Mort
their
subject
the ad
rally
also
count
once
files.
thre
and
the
lives
fren
D
with
A
they

From accurate observations made in the city of London, the average life of a baker was found not to exceed 30 years. & studious men from their sedentary lives are subject to headache and *Dyspepsia*; hence this last has been called *Morbus studiorum*. Judges from their sedentary lives, and their being obliged to retain their urine for a long time, are subject to gravel & stone. Lawyers and Physicians enjoy the advantage of alternate study and relaxation, and are generally longer lived than other classes of people. Physicians also know better how to take care of their health, and on this account are more free from disease. Country Physicians who ride much on horseback are subject to fistula in ano, costiveness & piles. The Clergy frequently live very sedentary lives, and are therefore often unhealthy, being subject to *Dyspepsia*, Gravel, and Consumption. This is more the case with the catholic than the protestant clergy, since the latter marry & lead more active lives than the former. For an account of the diseases of different kinds of tradesmen, I refer you to

Religion

Those who possess true Religion are happy. It conspires with hope, produces universal love, and causes health.

Amusements

Amusements frequently produce predisposition to disease, they are particularly hurtful to women from the violence
done

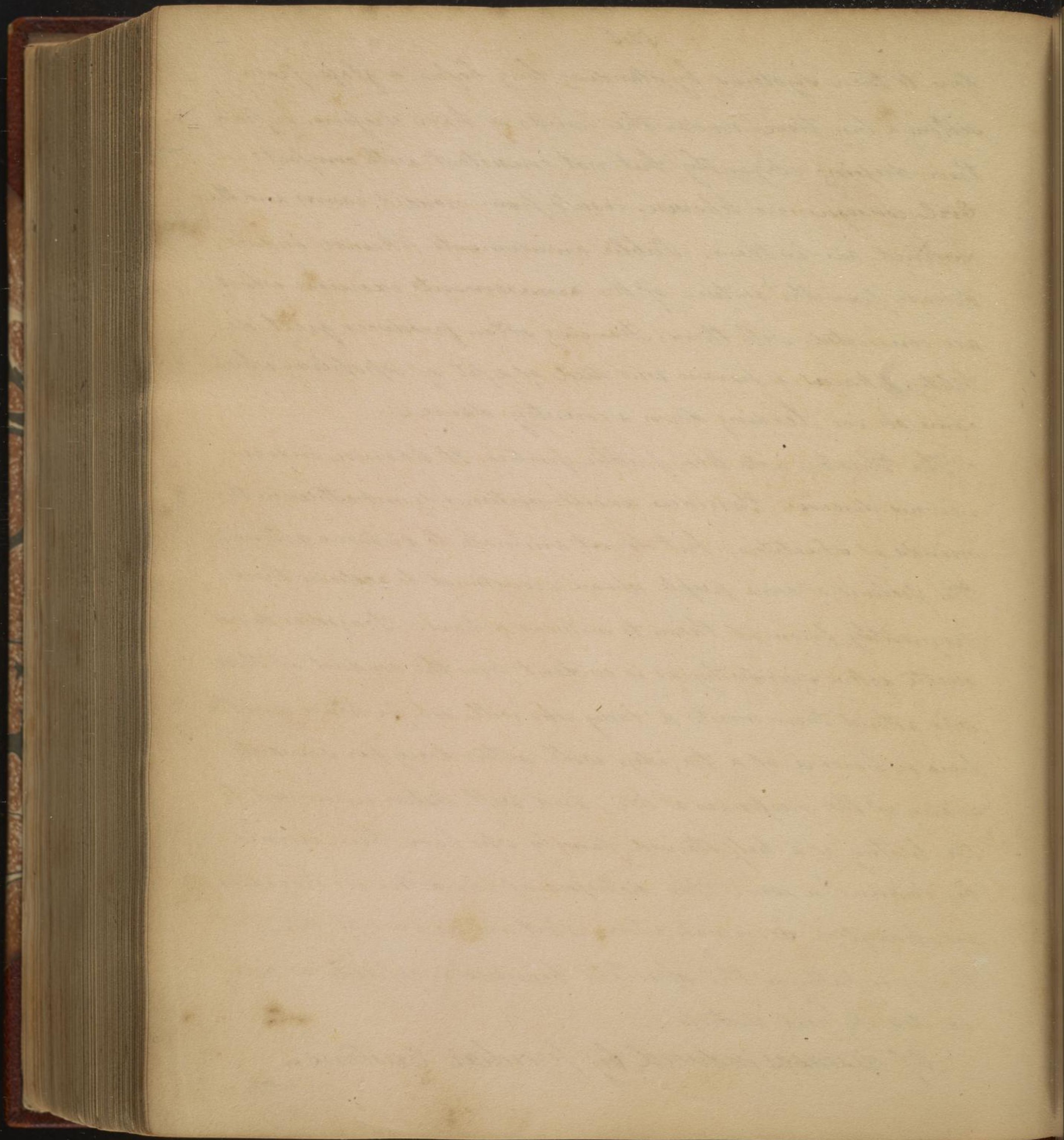
done
sitting
hair
girl
confine
disease
are co
fidelity
came
of
The
new
men
the
frequent
excite
who
here
man
the
by
are
the
excite

done to their systems by standing long before a glass, from sitting a long time under the hands of hair dressers, or from their dressing elegantly but not consistent with comfort. — Evil consequences likewise result from crowded rooms and the confined air in them. Public amusements likewise induce disease from the nature of the ~~amusements~~ exercises which are connected with them. Dancing often produces great debility: I knew a person who died of a fit of Apoplexy which came on in leading down a country dance.

The Theatre acts like public parties. It likewise induces nervous diseases. Tragedies excite virtuous sympathies in the minds of spectators, but do not animate to virtuous actions. The feelings of some people who are accustomed to restrain them, frequently prompt them to virtuous actions. Tragedies do not excite active sympathy, as is evident from the conduct of those who attend them most. A lady who will sob for hours over the hero or heroine of a tragedy, will often deny her servants many of the necessities of life, and will listen unmoved to the history of a half starved family who have been ruined by famine or war. The distresses of characters in tragedies are painted so much above what occurs in real life, that the sympathy of the spectator becomes incapable of being excited by real distress.

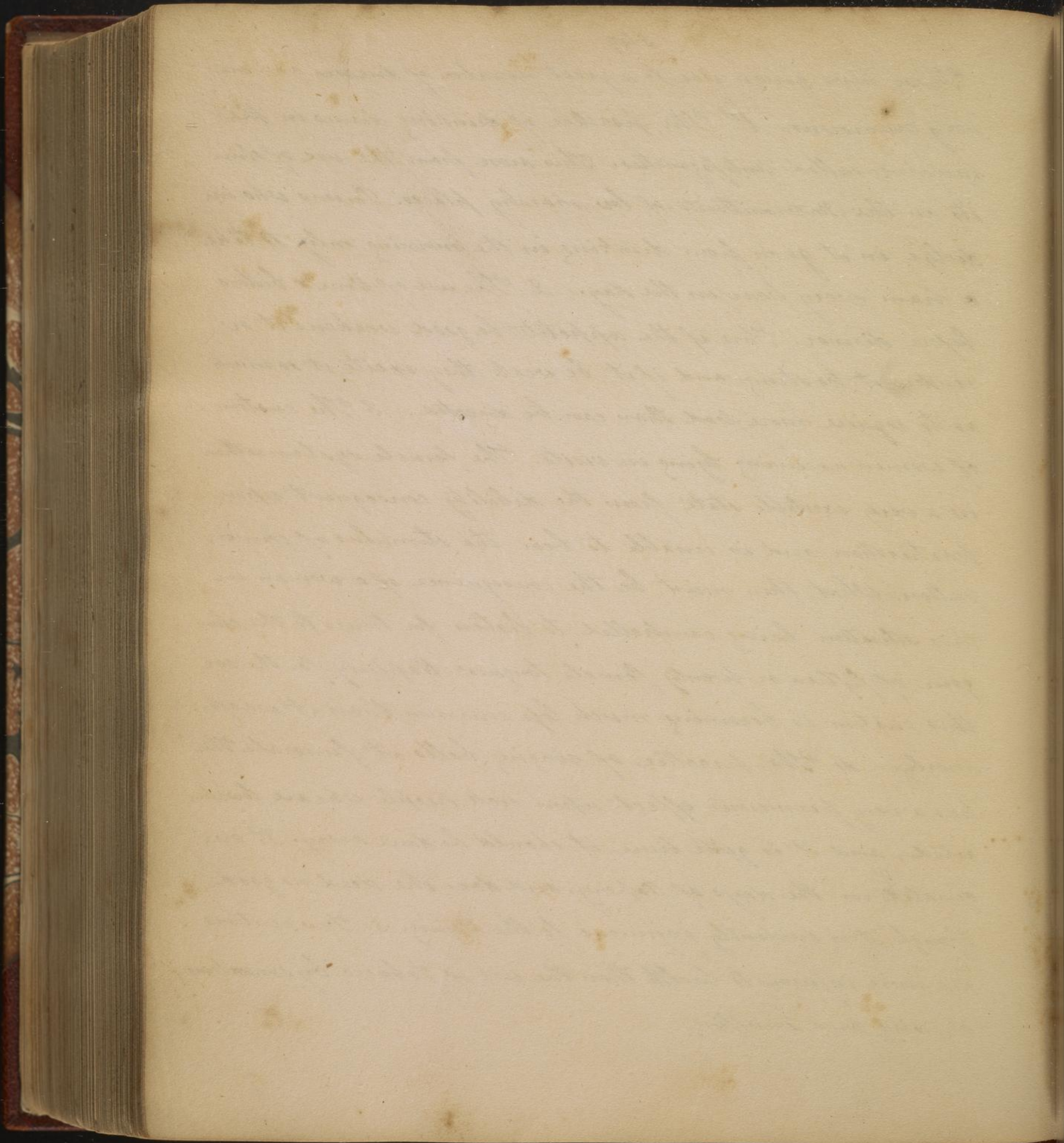
Of diseases induced by peculiar Customs.

These



these
very
more
its in
deluge
a dra
before
under
as to
of w
in a
par
satio
this
your
this
more
has
ritea
gina
thou
me
chee

These have given rise to a great number of diseases, and are very numerous. 1st The practice of drinking drams in the morning, called Antifogmatics. This arose from the use of spirits in the Intermitments of low marshy places. Persons who indulge in it go on from drinking in the morning only, to take a dram every hour in the day. 2 The use of Wine & Bitters before dinner. This if the appetite be good weakens it or renders it too strong, and if it be weak they excite it so much as to require more food than can be digested. 3 The custom of women receiving lying in visits. The female system is then in a very excitable state from the debility consequent upon parturition, and is unable to bear the stimulus of conversation. What then must be the consequence of a woman in this situation being compelled to listen for hours to the clamour of fifteen or twenty female tongues? Happily for the sex this custom is becoming much less common than it was formerly. 4 The practice of ringing bells at funerals. This has a very pernicious effect upon sick people who are low spirited, and it is quite time it should be done away. It originated in the days of Popery, and does the dead no good, though it is evidently injurious to the living. 5 Few customs are more injurious to health than the use of Tobacco by smoking, chewing and snuffing.

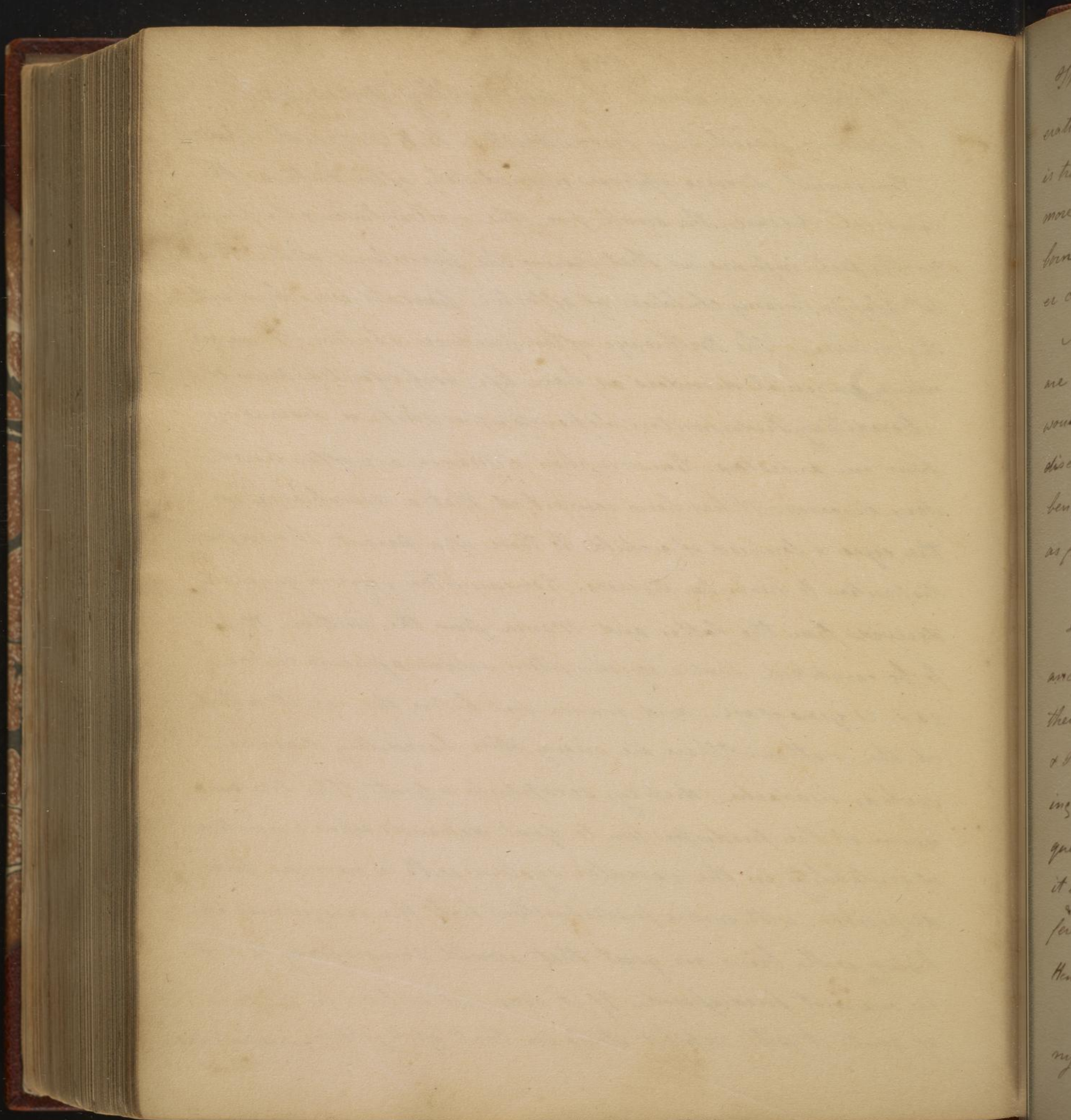


of
for
Con
rener
to No
at 20
the de
many
How
from
story
the
dispo
desir
to be
as on
ed to
such
ipin
of in
dispo
bin
in a
of 3

Of diseases induced by unhealthy Ancestors
producing hereditary predisposition to, & congenial diseases

Congenial diseases appear immediately after birth, as the
venereal disease, the small pox, the yellow fever, & the plague.
Dr. Keissel informs us that during the prevalence of the Plague
at Aleppo, many children of affected parents were born with
the disease. The Influenza often produces abortion. There are
many congenial disorders as hare lip, imperforated anus &c.

Hereditary Predisposition depends upon shape &c. descending
from our ancestors. Consumption & mania are often hered-
itary diseases. It has been remarked that a resemblance in
the eyes & forehead of a child to those of a parent, shew a pre-
disposition to his or her diseases. Consumption is more generally
derived from the father and Mania from the mother. It is
to be remarked that a consumption seldom appears before
20 or 21 years of age; and mania not before the age it attack-
ed the mother. There are many other hereditary diseases, -
such as headache, dropsy, scrophula & Gout. The trans-
mission of the predisposition to Gout depends upon a mixture
of irritability in the vascular system with a nervous pre-
disposition; with such a predisposition, half the irregularity in
living will bring on gout that would be necessary to do it
in one not predisposed. If it does not appear in the form
of gout, it will exhibit itself in that of Hysteria, dyspepsia &c.
These



These predispositions often pass by the first or second generations & appear in the third or fourth. The colour of the skin is transmitted from parents to children, and it is said to be more frequently derived from the father. It is said that a child born from a black father and white mother will be of a darker colour than one whose father was white and mother black.

A Physician should always inquire whether chronic diseases are hereditary, since they are the more difficult to cure. It would be very useful for parents to keep memoranda of their diseases, and the remedies by which they were cured, for the benefit of their children; for there are family remedies as well as family diseases.

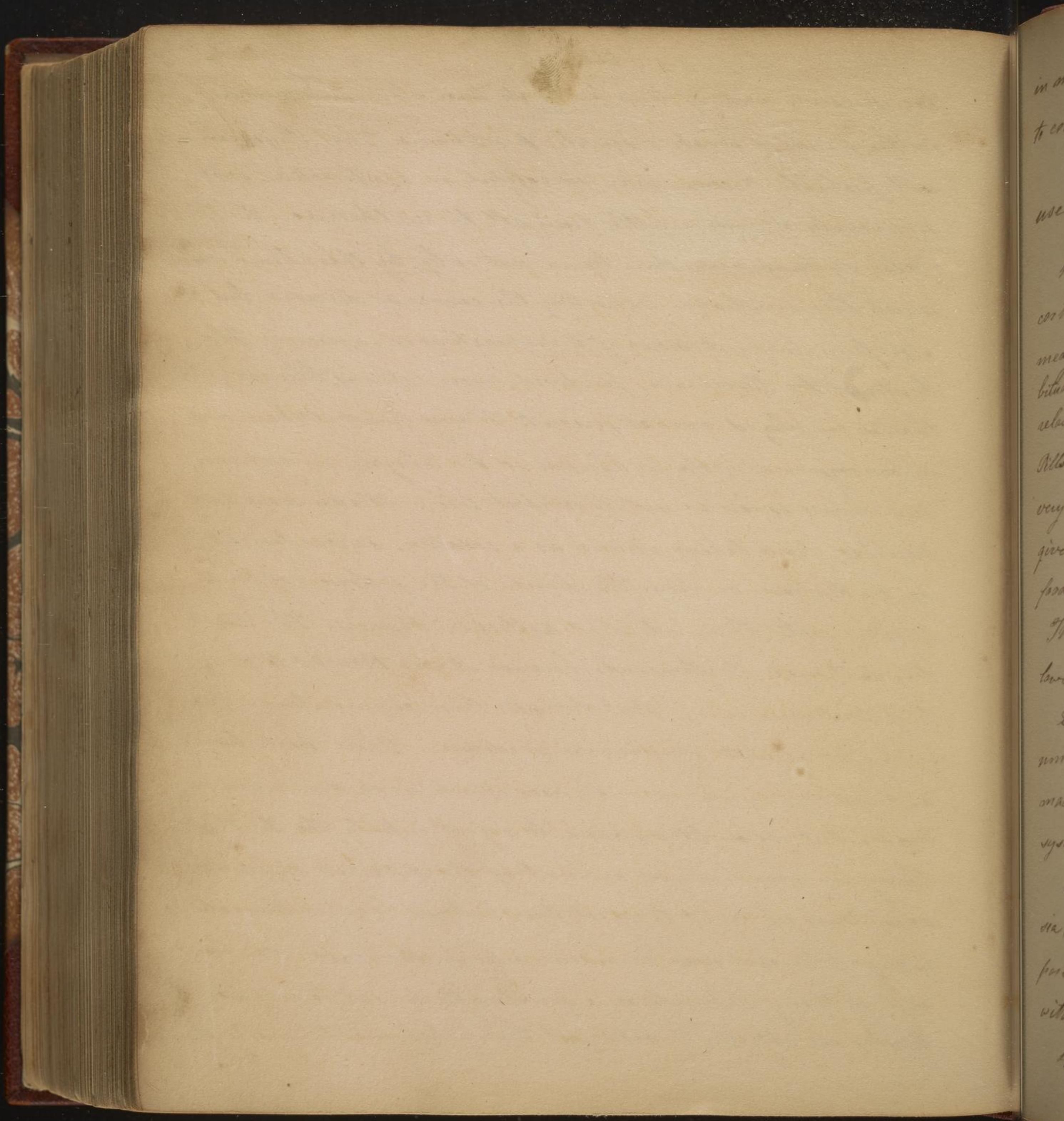
Of Filial Diseases.

These are acquired by whole families without any of their ancestors having been affected by them, from a similarity in their diet or occupations. I have known Epilepsy, Hemorrhages & Palsy to pervade a whole family or families, without their being any predisposition to them from their ancestors. This frequently occurs with yellow fever, ^{& consumption} also, when this is the case it is said to ~~produce~~ prove the contagious nature of the yellow fever; ^{& consumption} although I believe nobody will assert that Epilepsy, Hemorrhages & Palsy are contagious.

False Systems of Medicine have induced many diseases from the time of Hippocrates & Galen down to the

the
in the
will
judic
false
which
also
Lent
than
in co
from
per
by
Bee
has
toy
jud
and
has
the
one
ma
ev
the

the present; each of them has in its turn slain its thousands in the hands of weak & servile practitioners. That Physician will probably become more successful in his practice, who judiciously borrows a little from all these theories. But false systems have done harm not only by the absurd ideas which they inculcated respecting the causes of diseases, but also from incorrect views of the operations of medicines. The Lector of Dr Boerhaave produced more copious bleeding than is employed even at present. Many hundreds have died in consequence of the publication of Dr Cheyne on regimen, from living so low as not to support life. Many more have perished from taking opium as a sedative, as was taught by Dr Cullen; or from the hands of the followers of Doctor Brown, with their ideas of asthenic Diseases. The Bark has destroyed its thousands because it was thought to destroy putrescency. But let not these circumstances prejudice us against theories in medicine. There have been and yet are many false theories which have done much harm; but we ought no more to reject intirely the truth of theory in medicine, on account of the different spurious ones, than we ought to reject true religion because there are many false and even erroneous ones in the world. The great evil of theory depends on a servile attachment to any particular one. We must not reject theory, because there is truth
in



in medicine as well as in morals. Free Theory enables us to collect, to arrange and combine facts.

Of diseases induced by the imprudent or habitual use of Remedies without, or by the advice of a Physician.

1 Purgings, this when too frequently resorted to disposes to costiveness, and thereby often calls for a renewal of the remedy. Different purges induce different affections. The habitual use of Aloes predisposes to Piles. The habitual use of salts relaxes the bowels and disposes to Diarrhoea & Colic. Butternut Pills dispose to head ache, Vertigo, Palsy & Apoplexy. Purges are very commonly employed in France. They are frequently given to prevent eruptions, but abstinence from animal food would be a much better plan.

The habitual use of Clysters destroys the activity of the lower bowels.

2 Emetics, the habitual use of these, produces an accumulation of bile, dyspepsia and other affections of the Stomach, and by this means produces ~~xxx~~ affections of the whole system, they also occasion ruptures of all kinds.

3 The habit of using bitters produces debility & dyspepsia, and disposes to Vertigo Palsy & Apoplexy. It likewise disposes to drain drinking. Exercise is the best tonic, together with a well regulated diet.

4 The habitual use of ~~more~~ nitre induces Dyspepsia
Indigestion

Indig

5

6

preju

7

ions

8

inju

9

hucre

juio

stat

use

debi

but

and

not

from

the

and

ded

11

long

Indigestion, and a disposition to Colic.

5 The use of Opium produces Languor, dyspepsia &c.

6 The habitual use of Bloodletting in the spring is very prejudicial, inducing Plethora, Apoplexy &c.

7 The employment of sweating medicines habitually is injurious and induces disease.

8 The habitual use of wine has been productive of much injury.

9 The cold bath by being imprudently employed has induced hemorrhages. The warm bath has also been rendered injurious by being improperly employed; though in the forming state of fever it is an excellent remedy. The indiscriminate use of the pediluvium has been equally injurious. During the debility ^{which} predisposes to disease it is of immense service, but when morbid excitement prevails, it produces delirium and an increase of every morbid symptom. Spirit of Wine will not do more harm than the pediluvium when the disease is ~~form~~ formed.

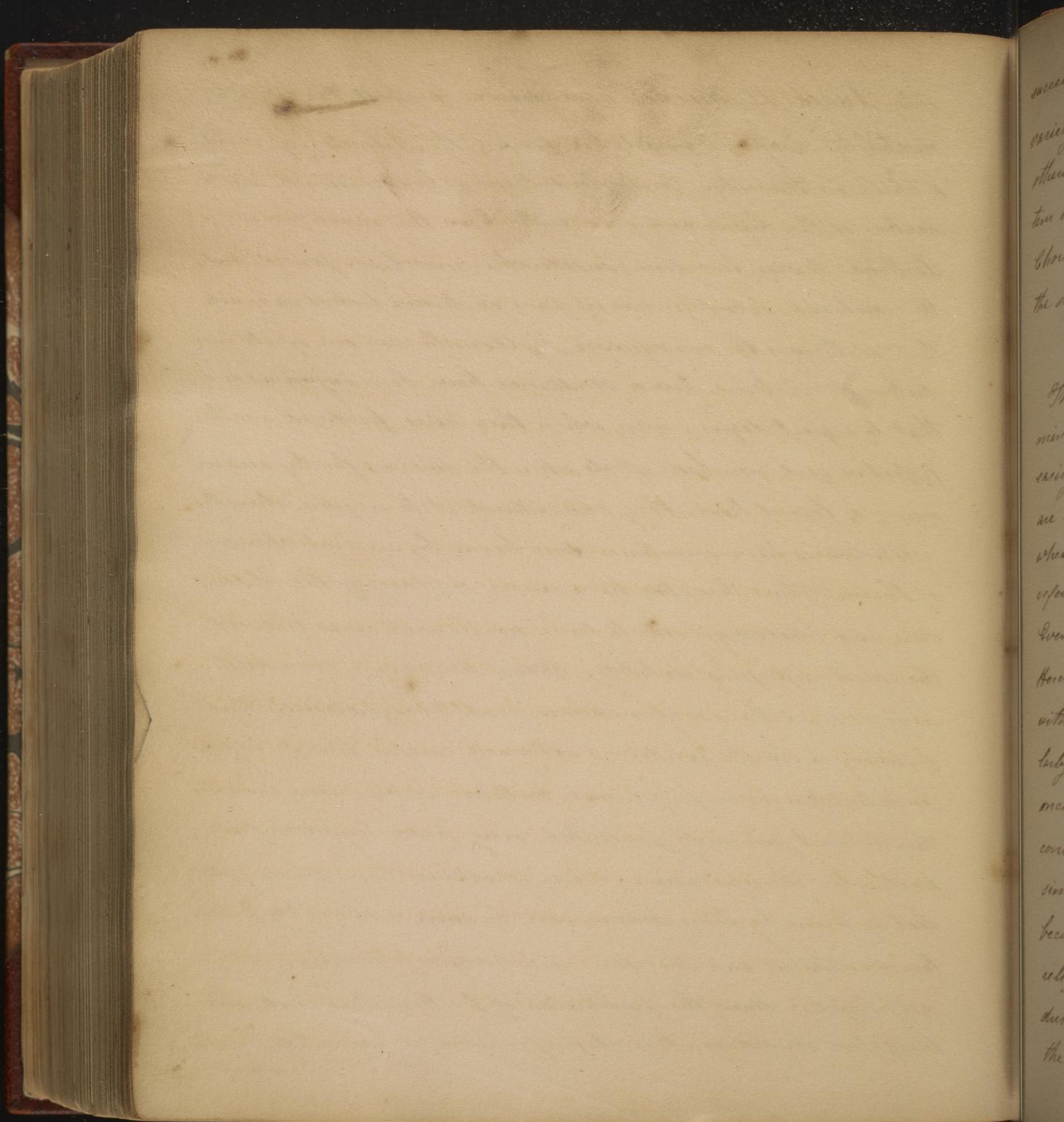
10 The employment of diet drink is likewise very injurious. The use of it in the spring was introduced by improper theories, and abstinence will answer the purpose for which it was intended, and that far more more effectually.

11 Even exercise when used improperly and continued too long has done much mischief.

12
most
a che
matio
Pitt
the c
that
part
that
prop
mire
N
of the
sels
the
have
Gen
the
thou
par
deal
lar
em
fury

12 Quack Medicines have served to swell the bills of mortality. Godfrey's Cordial has proved the destruction of many a child in this city. Hurlington's Balsam has occasioned inflammation of the bowels and even death. Even the much famed - Portland Powder has done considerable mischief. James's Powder, the celebrated febrifuge has in some instances puked so much that death was the consequence. Goldsmith was one of its unfortunate victims. Quack Medicines have been injurious, and that to a great degree, even when they have produced neither positive good nor bad effects upon the disease; for by accustoming a loss of time, they have allowed it to acquire strength.

Medicines have sometimes done harm by an improper use of them. Thus Emetics have caused ruptures of the bloodvessels, and bleeding joined to fever has in some cases induced the most distressing debility. Many diseases and even death have followed the use of medicines, from Idiosyncrasies. This Gentlemen should render us extremely careful how we injure the reputation of our professional brethren, since many remedies though most judiciously prescribed may prove injurious from particular idiosyncrasies. Many medicines have done a great deal of harm by being recommended by some eminent & popular Practitioner, and therefore exclusively & indiscriminately employed. Since the publication of Dr Hamilton's work on purgative medicines, this class of medicines has in Edinburgh succeeded



succeeded to the Tartar Emetic and other medicines in a great variety of cases. This is an empirical book, and like all others of its kind will have its day. There is however no system in it, for the author says ~~these~~ purges are useful in Chorea, in scarlatina, in Typhus &c, without any attention to the state of the system, or the season of the year.

Of Diseases induced by Sympathy & Antipathy.

This is a difficult part of our course. The sympathy between minds is well known to exist, but that between bodies is less easily conceived. Gaping is transmitted by sympathy, and so are the ticks of schoolboys. These are like the shirt of Hercules when once on, they cannot easily be got rid of. Of this cause I refer the sore eyes that sometimes arise from viewing them in others. Even convulsions are sometimes transmitted by sympathy. In the Herculanean school there was a girl who was powerfully affected with convulsions, and from seeing her 100 others became similarly affected. Dr Hutchinson informed me that a man was once brought ~~there~~ to the Pennsylvania Hospital affected with convulsions, and that from seeing him six others were also similarly affected. In a part of the U. States convulsions have become very common from sympathy, I mean among certain religious societies. These are not counterfeited, and the pulse during their continuance is frequently absent. They may be the effect of oratory, or perhaps may arise from supernatural influence

infl
con
by sy
furo
off
man
imita
moti
spee
of b
whic
com
hous
dog
acco
ver
as
mon
the
men
com
all
an

influence on one or two, and by the principle of imitation be conveyed to the rest. Stuttering is frequently communicated by sympathy, particularly if any respect is entertained for the person who stutters.

These effects are all to be explained by remembering that man is an imitative animal, and that the principle of imitation is deeply seated in the human mind. By its means motions are performed in an involuntary manner, & speech is the effect of the imitative faculty; even the customs of brutes are acquired by its means, a striking instance of which occurred in the State of Virginia. A child was left in the room with a dog while the parents were labouring out of the house; at length it opened its mouth & caught flies like the dog, and even ate in a similar manner. But how shall we account for that intuitive evidence which some people discover in finding out events to which they are entire strangers as to any external cause. Dr Johnson says that Lord Roscom, when at school in France, was suddenly impressed with the idea of his father's death, who was at the distance of 500 miles. His father died at that very time.

Antipathy is either congenial or acquired. Many persons are born with antipathies to things which are not at all dreadful to others. Thus Peter the Great was born with an antipathy to water. Others have had them toward cats, dogs

[Faint, illegible handwriting on a single page of aged paper.]

days
was
it the
Mary
the
the
in the
Mary
anti
have

1
and
a po
me
it in
We
supp
desi
to
gain
have
tion

dogs, cats &c. I once heard of a man who could tell if a cat was in the same room with him, without either seeing or hearing it: this must have been owing to some effluvia from the animal. Many antipathies are acquired by having been satiated with the objects of them. They frequently arise from association.

The congenial antipathies arise from impressions made up on the pregnant mother: thus by a fright experienced by Mary, Queen of Scots, her son James 1st was born with an antipathy to a drawn sword. And many similar instances have happened.

Of diseases induced by the Association of Ideas and Motions.

1 Of Associations of Ideas. I formerly treated of this subject, and it is one well deserving of attention: these associations have a powerful effect, and there is scarcely a disease in which they are not concerned. 2 Of Associations of Motions. These exist 1st in consequence of associations of Ideas; and 2nd without them. We often perceive them in brutes, where ideas cannot be supposed to exist, and in human beings where disease has destroyed every vestige of reason.

From association we accustom ourselves to make water before going to bed, and if we by any means omit it although we may have emptied the bladder a short time before. Dr Percival mentions the case of a lady who was a profuse snuff taker, being attached

[Faint, illegible handwriting across the page]

attack
for
before
After
ial
ance
line
it de
The
ation
duces
M
when
you
long
accid
tho
rece
disc
ced
the
day
can

attacked with Palsy. Upon applying the volatile Alkali to her nose, she raised up her hand to it, a thing which she was before unable to do.

Association of motions is the cause of the recurrence of periodical diseases. In Intermitents this may be owing to the recurrence of a certain degree of light and heat, or to the accumulation of a certain quantity of bile in the stomach. I suspect that it depends chiefly upon the return of a certain degree of light. The recurrence of Epilepsy probably arises from the association of motions bringing on the excitability which first produced it.

Of Diseases induced by accidents.

Many diseases are induced by Burns, falls, Bruises, wounds, fractures &c. For an account of their effects I refer you to Bell's Surgery. The disease sometimes comes on a long time after the accident, and even the acute effects of accidents do ^{not} appear at first in every instance. I once saw Hydrocephalus internus, induced by the stroke of a hammer received eighteen months previous to the appearance of the disease. I saw another case of a pain over the eye being induced in a man, by his having when a child been carried by the hair of his head. You see then that we must go back days, months, and even years in searching for the remote causes of disease.

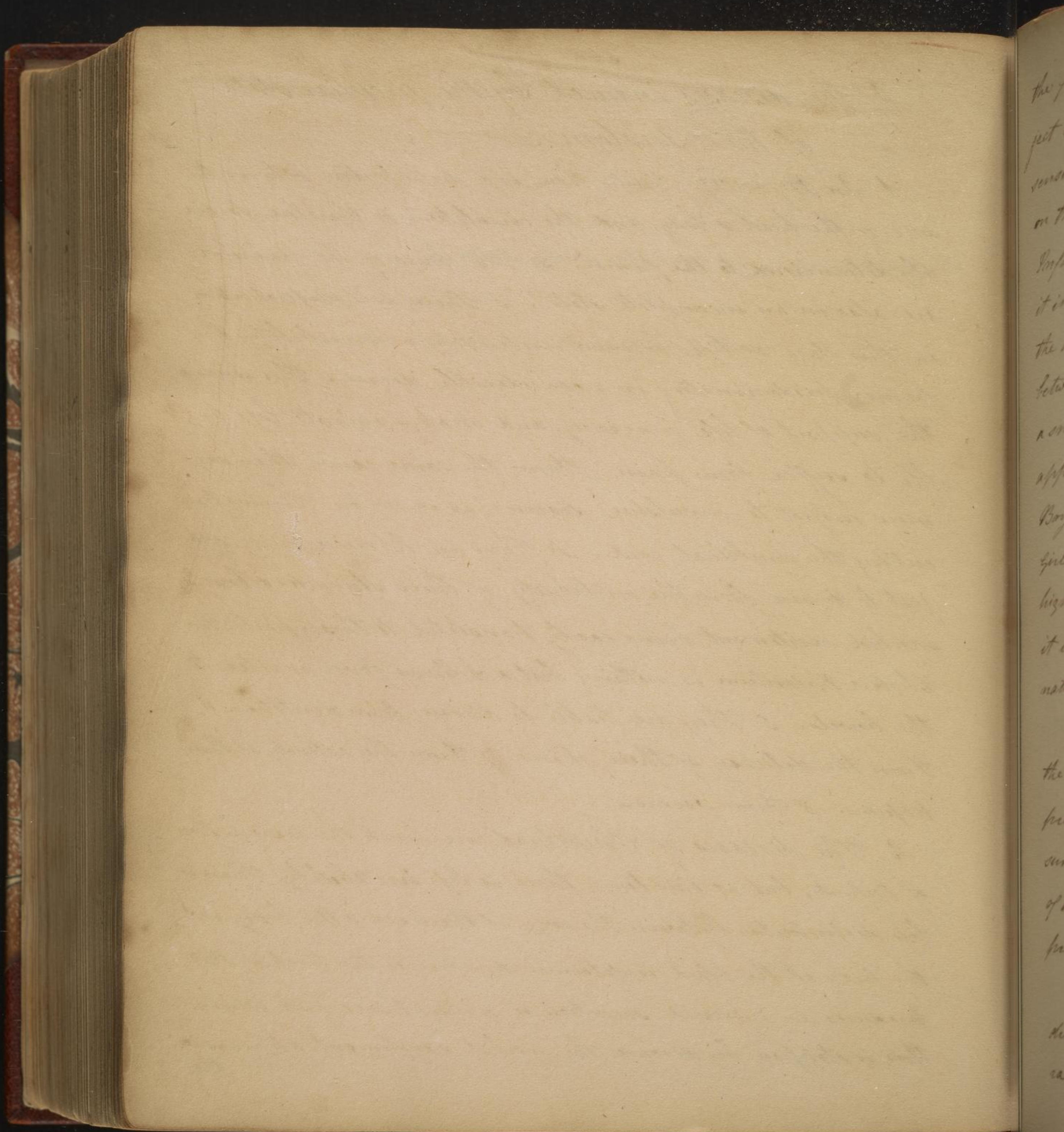
^x hence the cause of Hydrocephalus Internus, eruptions behind the ears, and *Linea Capitis*

^o hence another cause of Hydrocephalus Externus.

Of the diseases induced by the peculiar state
of the system

1 In Infancy. First, there is a disproportion between the size of the head & body, and the circulation is therefore forcibly determined to the former. 2 The bones of the cranium are also in an incomplete state. 3 There is a disproportion in this stage of life between irritability & sensibility, the former predominating in a considerable degree. This renders the support of life more easy, and makes infants less liable to suffer from pain. From the same cause they are more subject to convulsive diseases, as we see in Trismus from cutting the umbilical cord. 4 They are likewise more subject to disease from the irritability of their stomachs & bowels, morbid excitement being easily translated to those parts. The Cholera Infantum is nothing but a bilious fever invited to the bowels. 5 They are liable to disease from dentition. 6 From the delicacy of their skins. 7 From the activity of their passions. 8 From worms.

2 The diseases of Childhood are much the same as those of Infants, but at this time there is less irritability. There is less disproportion between the size of the head & the body, and the force of the blood is determined more to the trachea; this produces an increased secretion of mucus there, and when this is stopped by disease, the morbid excitement appears in the



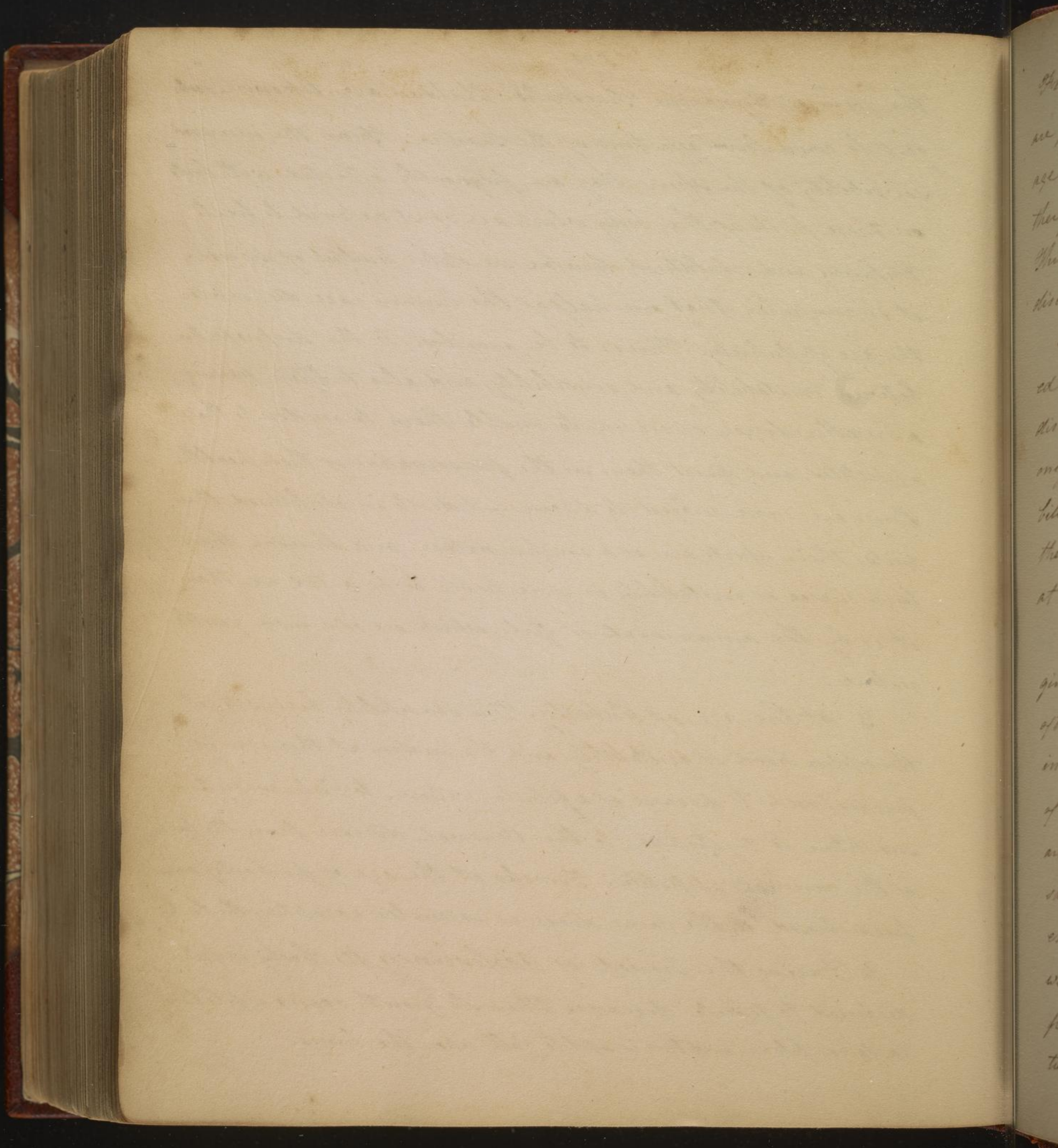
the form of *Erynache Strachalis*. Children are likewise subject to convulsive affections of the Trachea. From the increased sensibility of the skin, they are frequently affected with boils on those parts of the body which are most exposed to heat.

Infancy and childhood therefore are states fruitful of disease; it is computed that one half of the human race die under the age of Puberty. This is to be ascribed to the disproportion between irritability and sensibility, and also to their having a smaller degree of reason to enable them to moderate their appetites, and direct them in the preservation of their health. Boys are more subject to disease and death in childhood than Girls; their sports are of a rougher nature, and therefore their high degree of irritability is more liable to be acted on, than it is by the amusements of girls, which are of a more gentle nature.

3 At the age of Puberty. The sensibility begins to get the upper hand of irritability, and the system at this age is predisposed to diseases of a febrile nature, to Pulmonary Consumption, to Dyspepsia, to the Venereal disease from the force of the venereal appetite. Females at the age of puberty are predisposed to the same diseases as males, excepting the last.

4 During the period of Adolescence the body is predisposed to febrile diseases. When its growth ceases a plethora takes place, and this is apt to fall upon the lungs.

From



From the period of birth to the age of 36 or 40 the Veins are proportionally more dense than the arteries. But after this age the arteries acquire a greater proportionate density, and therefore plethora is more apt to fall upon the venous system. This is generally first perceived in the Vena Porta, and hence diseases of the liver are very common at this time of life.

5 After the victory of the arteries over the veins is confirmed, the system loses its predisposition to many constitutional diseases, such as head ache and consumption. This commences only occurs about the 40th year of life. At this time excitability and excitement are in exact ratio to each other, and there is more health of body and mental happiness than at any other time.

6 During this period however the diseases of old age begin to appear. The signs of decay in the body are the falling out of the teeth, the diminution of the eye sight, and a want of action in the sphincter of the bladder. As soon as a man begins the use of spectacles he may be said to have woven a part of his shroud, and when he begins to rise at night to make water, he may be said to have advanced one step toward the grave. In old age excitability predominates over excitement, and on this account wine & ardent spirits should be avoided. This predisposes old people to be carried off by slight causes. Fewer deaths occur between 40 and 57 than in any other period of life. From that time

^x from the increased excitability of the arteries.

time to the 63rd year of life which may be called the grand climacteric; the arteries seem to collect all the excitability of the system and by this means conduct us safely & gently down the hill of life. Beyond the age of 75 the system is more predisposed to inflammatory diseases, Colic, Gout, Vertigo, Apoplexy &c.⁺ In old age the fluids of the body become acid, the tears are purulent causing soreness of the eyes, and the perspiration is acid; hence the reason why children are injured by sleeping with old people. Shifting sores at this time of life frequently terminate in cancers, and bruises often end in mortification. Old age is marked by progressive and general debility, and this disposes to chronic and acute ~~debility~~ diseases. The chronic affect the arterial & nervous systems, the brain & the muscles, here they produce Tremors in the head & hands, then in the legs; this weakness afterward extends to the muscles of the back, and lastly to those of respiration. The acute diseases appear 1 In the arterial system. 2 In the nervous system. 3 In the alimentary canal. Death from old age is a very rare occurrence, I have known but five cases of it. Old people almost always die with some pain and this is indicative of disease. Dr Priestly informed me that his grandfather died of extreme old age alone. He was sitting in his arm chair surrounded by his family, and immediately after declaring that he felt no pain whatever, he breathed his last. —

of
the
those
his po
sulla
tole
me
liab
men
give
are
ture
are
from
pro
ful
crus
wor
siz
S
ear
ma
th
are

Of the diseases induced in Single & Married Life.

Married people are generally more healthy & longer lived than those in a state of celibacy. Single men in a state of solitude are disposed to Hypochondria, and in company to the diseases resulting from dissipation. A Bachelor's life is a good breakfast, a tolerable dinner, but a very bad supper. Single women are exposed to obstructions of the menses, and sometimes are liable to disease from what is still worse, secret disappointments in love. More single men & widowers die within a given time, than single women & widows. Married men are subject soon after matrimony, to diseases of a febrile nature, from causes too obvious to mention. Married women are subject to disease from barrenness, or from Pregnancy; from suckling or from not suckling when they are in a proper condition for it. The desire of Progeny acts powerfully upon the human mind; whether it be from this cause I know not, but I think I have observed unmarried women to be more liable than others to Hysteria, Dyspepsia &c

During pregnancy women are disposed to inflammatory diseases. They do not however often die of Phtthisis; the inflammation being absorbed from the lungs by the uterus: but when the uterus is relieved from its distension, many other diseases arise from the abstraction of the stimulus of distension.

Pregnancy

[Faint, illegible handwriting in cursive script, likely bleed-through from the reverse side of the page.]

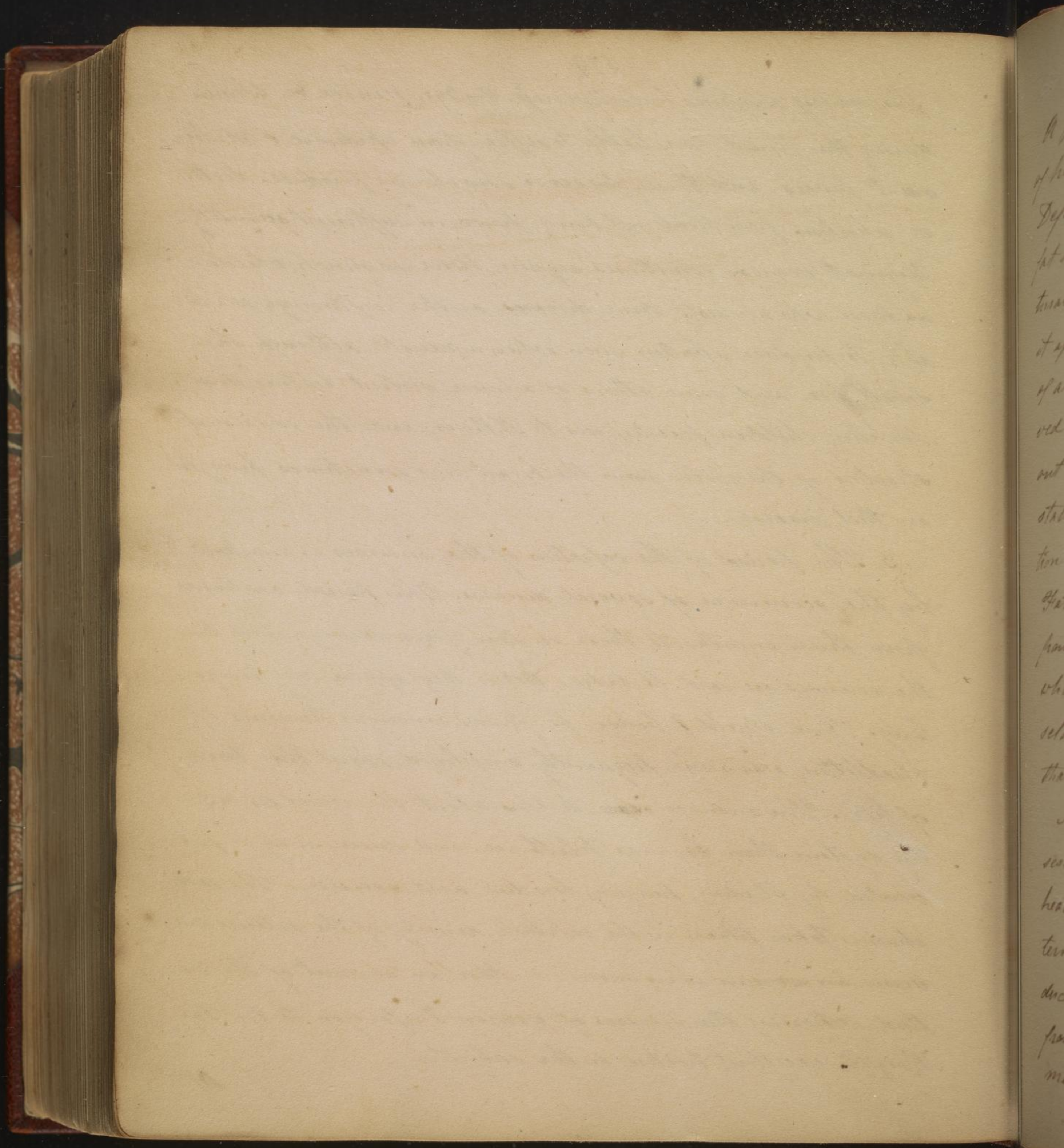
[Faint, illegible handwriting visible on the right edge of the page, possibly from the adjacent page.]

Pregnancy disposes to costiveness, Vertigo, Nausea &c. Women during this period are liable to suffer from epidemic & malignant fevers, and these diseases sometimes produce death or abortion, from blood not being drawn in sufficient quantity. Pregnant women sometimes require twice as much bleeding as those who are not. Some diseases, as the influenza are liable to produce abortion even when moderate, although the small pox and some others of a more violent nature do not. Suckling children predisposes to Phtisis; and the sudden abstraction of the child from the breast has sometimes brought on that disease.

3 The period of the cessation of the menses is marked by the occurrence of several diseases. This period continues from three months, to three or four years; during which time the menses are said to dodge, that is they appear very irregularly. There would I believe be fewer cancerous tumours if bloodletting was more frequently employed about this time of life. The menses cease to flow about the age of 45 or 50, the system then becomes plethoric, and disease may be prevented by bleeding, purging, low diet, and exercise. The same change takes place in the relative density of the arteries and veins, in women as in men.

For an account of the method of treating the diseases of women I refer you to Dr Forthgill's excellent treatise on the subject.

Of



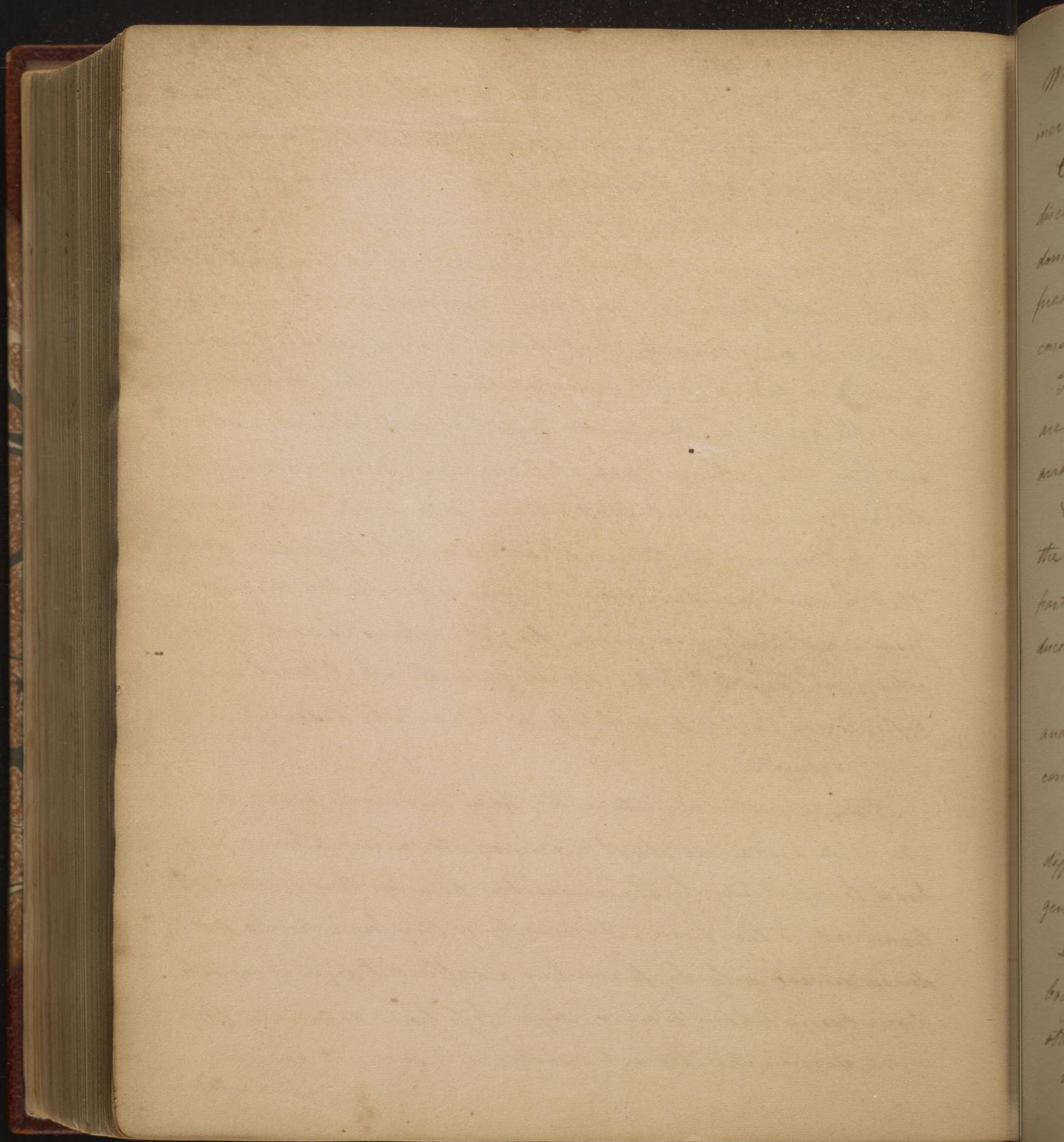
Of diseases from deformity & preternatural size.

A perfect shape is a cause and at the same time an effect of health, and hence perhaps one reason why it is so pleasing.

Deformity consists in being preternaturally large or small, fat or lean, disproportioned in particular parts &c. Preternatural height produces a great deal of disease, and those in whom it appears are generally short lived. I once saw an Italian of above 7 feet in height, none of whose ancestors had survived the age of 26. Dr. Darwin says that very tall men seldom out live the 25th or 26th year of their lives. Men of very low stature are also short lived. There is however one exception to this rule in George 1st who lived to be 80 years of age. That beyond a certain degree, disposes to all the diseases from a deficiency of exercise, for fat inclines to rest. Those who grow very fat before 40 are generally short lived. We seldom see people so destitute of fat as to be diseased on that account.

A disproportion of parts in the body disposes to many diseases. Thus a narrow chest predisposes to consumption; a large head to apoplexy, by the circulation being on that account determined to the head. Deformity of the lower limbs produces disease only by preventing a sufficient degree of exercise from being taken. Women suffer less from deformity than men, because they are not accustomed to so much exercise.

Montague.



Montague says that deformity of any part predisposes to an increase of the venereal appetite.

Congenital Weakness of a part or of the ^{whole of} body disposes to disease. This appears in seven months children who are seldom long lived. There are however some exceptions to this: the present King of England is a seven months child, but in consequence of his temperance he has reached a good old age.

The predisposing causes of disease which are artificial, are the consequences of neglect. Thus a long neglected catarrh often induces Phthisis Pulmonalis.

Certain Disorders produce disease. Thus a stricture in the urethra will often be the cause of inflammation in that part, and water in the ventricles of the brain sometimes induces Hydrocephalus Internus.

We have thus considered the remote, predisposing, and exciting causes of disease. I shall now proceed to consider the phenomena of Death, ^{toward} which all diseases tend.

The Phenomena of Death vary in different diseases & in different persons. In people in general the following symptoms are exhibited.

I The continuance of the disease in some parts of the body, and ^{excitement} frequently changing just before death to some other parts; these are,

1 The mind. Here it produces, 1 an elevation of mind only

[Faint, illegible handwriting on aged paper]

only
been
ship
this
around
made
some
have
from
about
in the
38
with
2
of
on
the
the
are
has
in

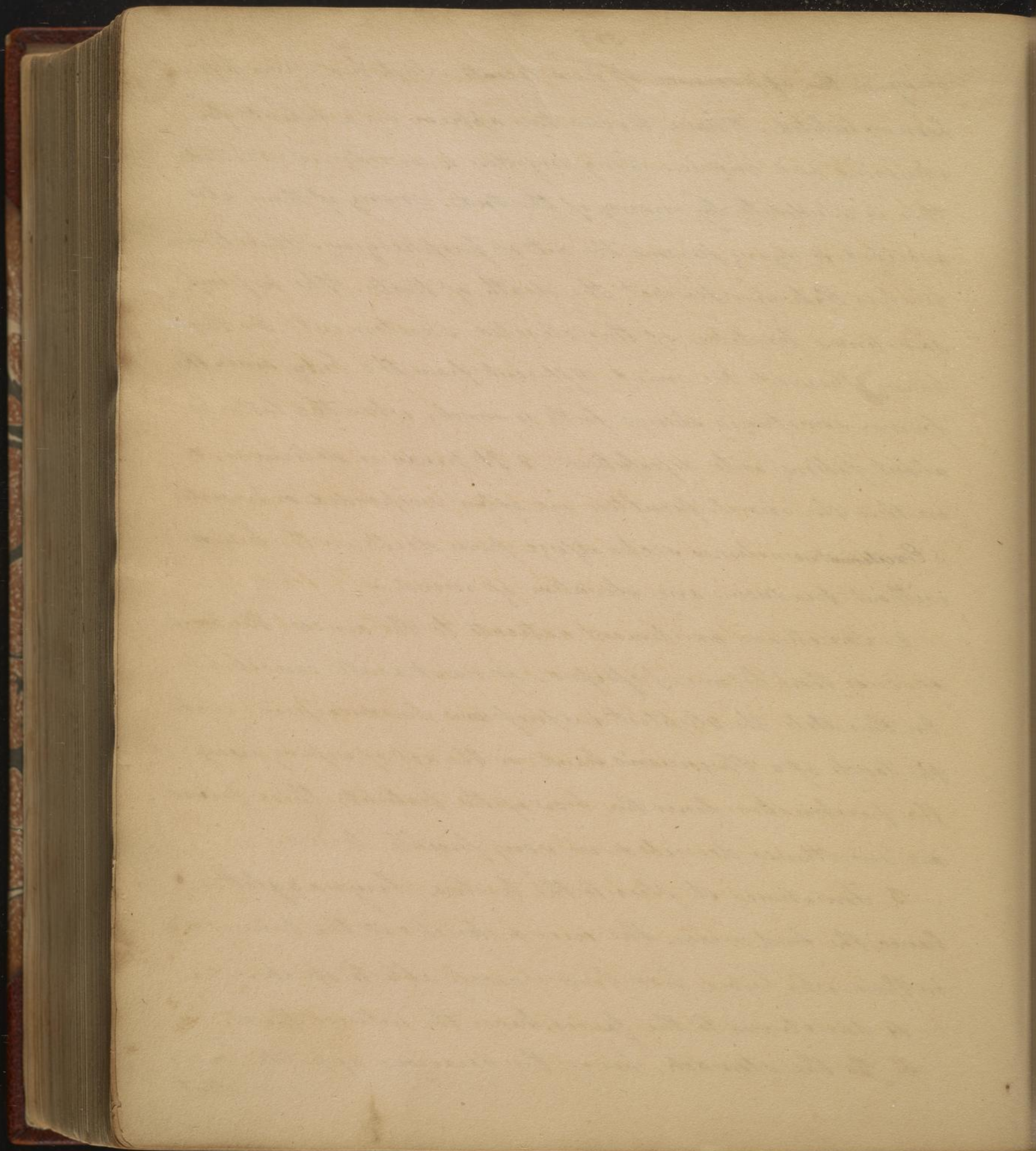
only, or the appearance of new talents which had never before been exhibited. I have known this appear in a talent for rhyming and music. Long forgotten knowledge is recalled, this is alluded to by many of the Poets; many of them also ascribed to dying persons the art of prophesying. Thus Homer makes Patroclus predict the death of Hector. The Poet sometimes partake of this elevated excitement. Dr Boerhaave thought the mind different from the body, since the former sometimes shines forth so much, when the latter is about falling into dissolution. 2 It produces delirium, & in this the moral faculties are often suspended or inverted 3 Excitement sometimes seeks refuge from death in the brain without producing any elevation of mind.

2 Sometimes excitement retreats to the senses; the organs of sense then become possessed of most acute sensibility. In this state the slightest impressions produce pain, even the touch of a Physician's hand, or the act of wiping away the perspiration from the brow of the patient; these pains are sometimes described in very forcible terms.

3 Sometimes it flies to the trachea, larynx & glottis; hence the loud voices, the cries & shrieks at the hour of death, in those who before had been scarcely able to speak.

4 Sometimes to the fauces, hence the intense thirst.

5 To the stomach, hence the voracious appetite, or violent



flour

6

7

net

8

heat

9

10

from

the

cre

how

diff

oc

pr

co

the

the

olent vomiting which frequently occurs before death.

6 To the bowels, hence the cause of Diarrhoea

7 To the kidneys, hence the suppression or increased secretion of urine.

8 To the muscles, hence the rising up, stiffness &c before death.

9 To the nerves, hence their acute sensibility.

10 To the arteries, producing hemorrhages & fullness of the pulse.

11 To the lymphatics, hence the dropsical effusions, or the absorption of water that sometimes takes place before death.

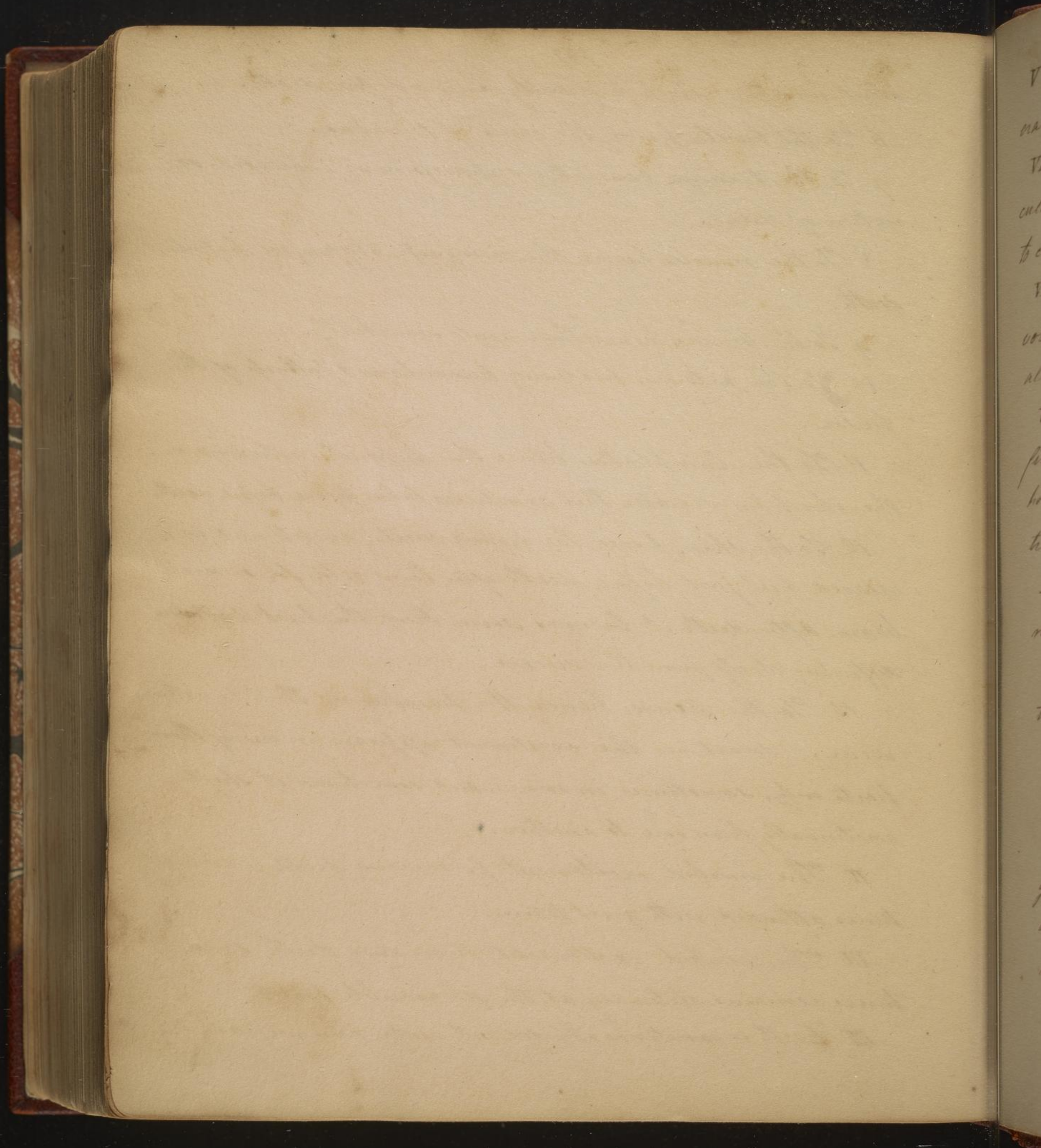
12 To the skin, hence the profuse sweats, eruptions, & increased heat just before death after being cold for several hours. After death it becomes warm from the heat ~~diffusing~~ diffusing itself from the viscera.

13 To the penis, hence the priapisms that sometimes occur. Sometimes the excitement appears in one of those parts only, sometimes in more, and sometimes it shifts continually from one to another.

II The morbid excitement preceeding death is sometimes attended with great pain.

III The morbid excitement preceeding death sometimes remains stationary at the pleasurable point.

III Death is sometimes attended with neither pain nor pleasure.



V Death is sometimes sudden, sometimes it continues for several days, and is attended with peroxisms.

VI Respiration becomes voluntary in the act of dying. The muscular strength is however ^{so} weak that the dying person is unable to cough, and hence the rattling in the throat.

VII The faces & urine are sometimes discharged in an involuntary manner. In this respect we are twice infants although only once men.

VIII The coldness of death begins generally at the toes & fingers, advancing from them to the feet & hands; sometimes however it commences at the wrists, as I shall mention when treating of the prognosis.

IX The surface of the lungs becomes cold; hence the coldness of the breath.

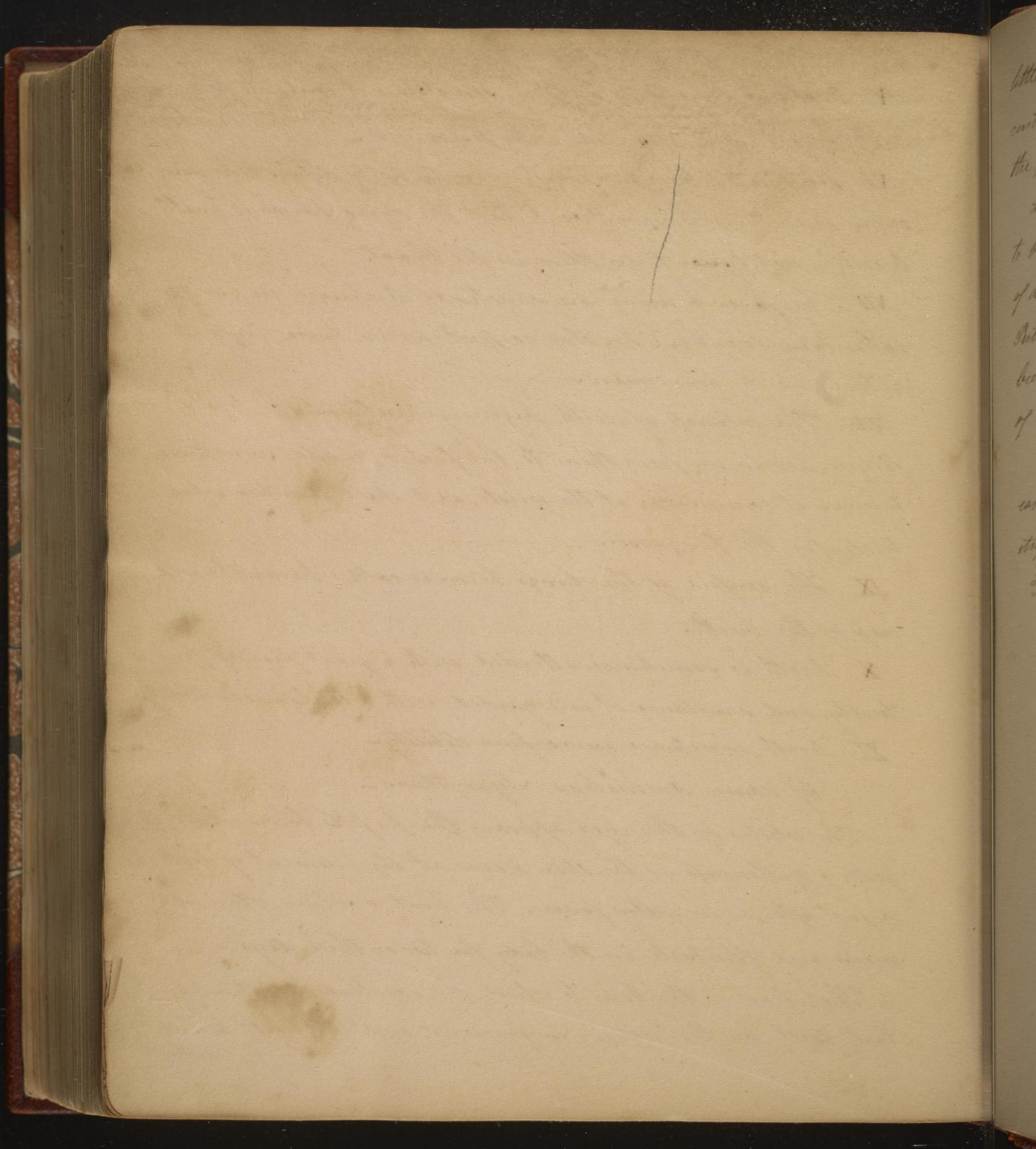
X Death is sometimes attended with a great fear of futurity, and sometimes it is regarded with a total insensibility.

XI Death sometimes occurs from debility.

Of some anomalous symptoms.

The whites of the eyes appear, the pupils become enlarged; a yellowness of the skin occurs at the moment of death, or just after, as in yellow fever. The heat & colour often remain and fluctuate in the body for two or three days.

That part of the body to which the excitement retreated last, will be the "ultimum moriens"; and if a part be but little

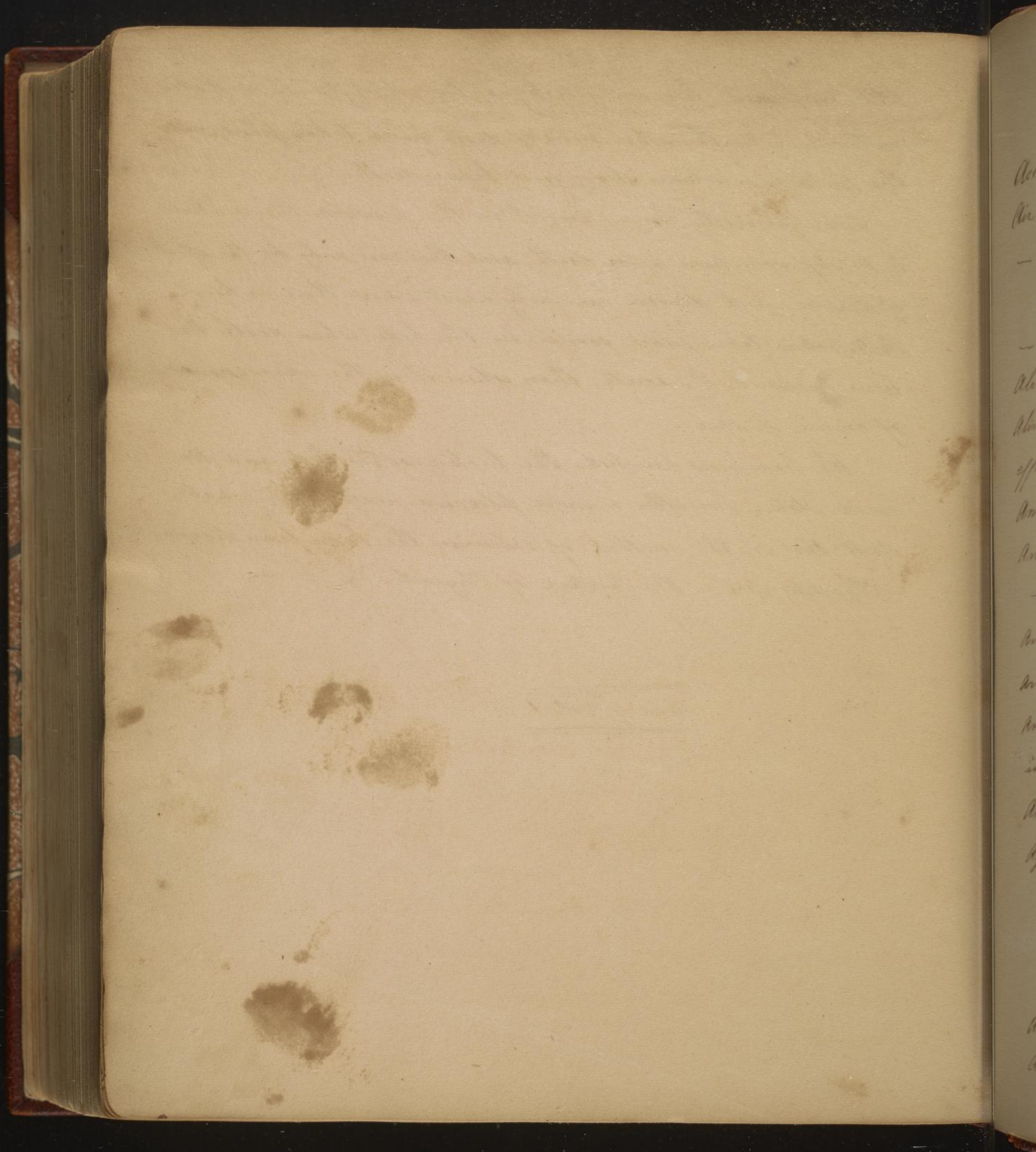


little impaired, life will continue longest in it. Thought often continues after the other signs of death have taken place, and the pulse is sometimes strong just before death.

Life generally lingers longest in the muscles, they continue to be stiff sometime after death, and this can only be the effect of disease, and disease can only exist where there is life - Putrefaction takes place sooner in the body when death has been produced by acute, than when it is the consequence of chronic disease.

We have now finished the history of the body in a diseased state; hereafter a more pleasing prospect presents itself, that is, the method of relieving the body from disease: Therapeutics or the Practice of Physick.

End of Vol. 1



Index ~

A

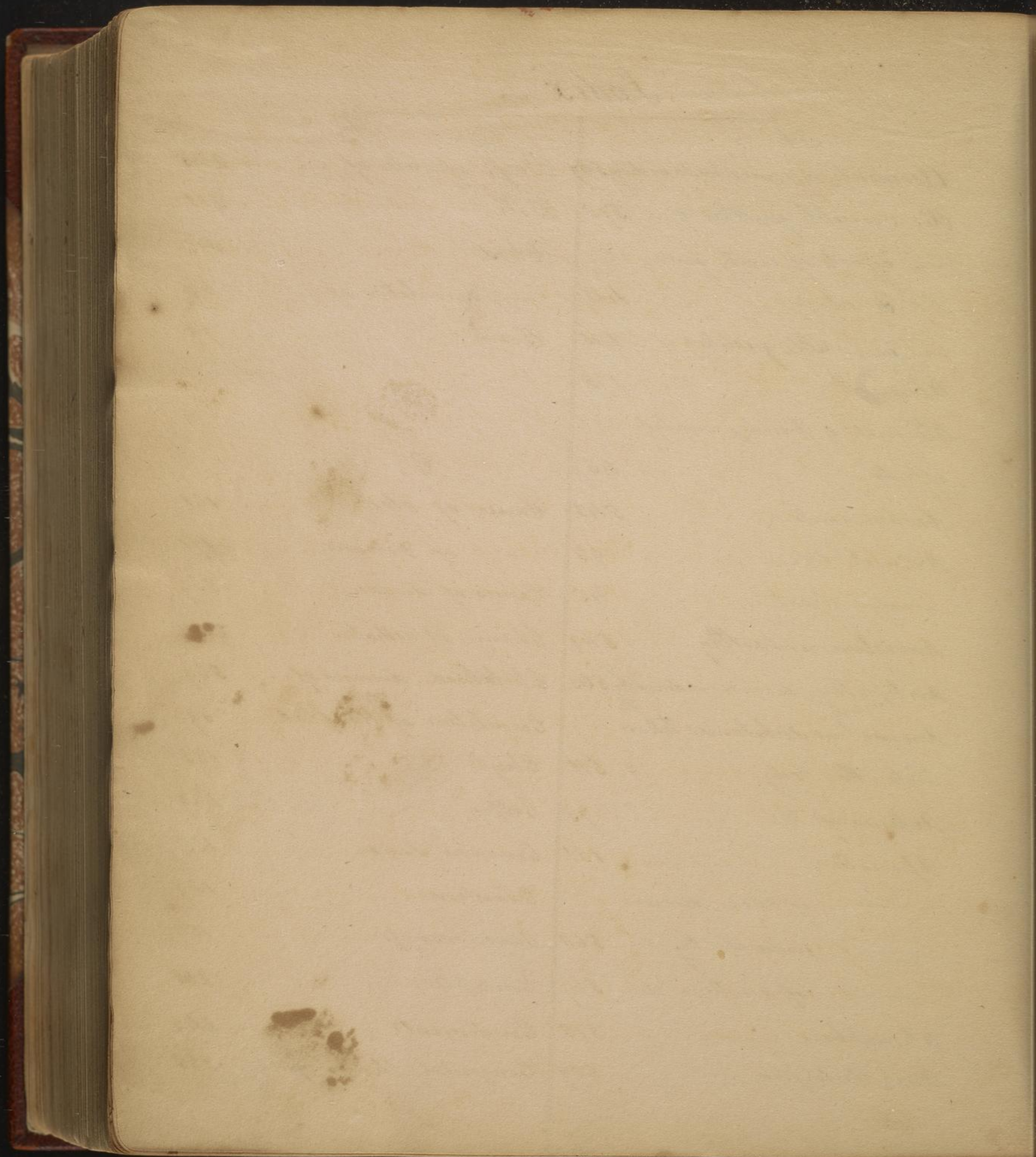
Accidents, diseases induced by 567
 Air, sensible qualities of .. 375
 — effects of rarity and
 density of .. 401
 — insensible qualities of .. 405
 Aliment .. 175
 Aliments & Drinks, morbid
 effects of .. 467
 Amusements .. 543
 Animal life .. 43
 — heat .. 45
 Ancestors, unhealthy .. 549
 Antipathy, diseases induced by 563
 Anomalous substances taken
 into the body .. 511
 Arteries, of the .. 73
 Association .. 151
 — of Ideas, diseases
 induced by .. 565
 — of motions. do .. 567
 Atmosphere .. 375
 Aura Dolorifica .. 309

B

Beef, essence of .. 245
 Bile .. 201
 Blood .. 185
 — circulation of .. 69
 Brain .. 79

C

Cause of sleep .. 161
 — of Dreams .. 171
 Causes of disease .. 269
 Change of situation .. 457
 Childhood, diseases of .. 569
 Circulation of the blood .. 69
 Chyle .. 185
 Coffee .. 489
 Common sense .. 155
 Conscience .. 149
 Consciousness .. 157
 Conception .. 225
 Condiments .. 249 - 485
 Congenial Weakness .. 583



Gold

—

—

Com

Com

Com

Com

Com

De

De

De

De

De

De

De

De

De

De

De

De

De

De

De

De

De

Cold, effects of 387
 — positive 393
 — negative 393
 Convulsions 309
 Contagions, specific 421
 Customs 545
 Condiments, morbid effects of 485

D

Deity, sense of 147
 Debility 271
 Deformity 581
 Depression 289
 Digestion 177
 Disease, causes of 269
 primary forms of 301
 scale of 305
 effects of 319
 seats of 321
 signs of 327
 divisions of 371
 remote causes of 375
 Disorder 301

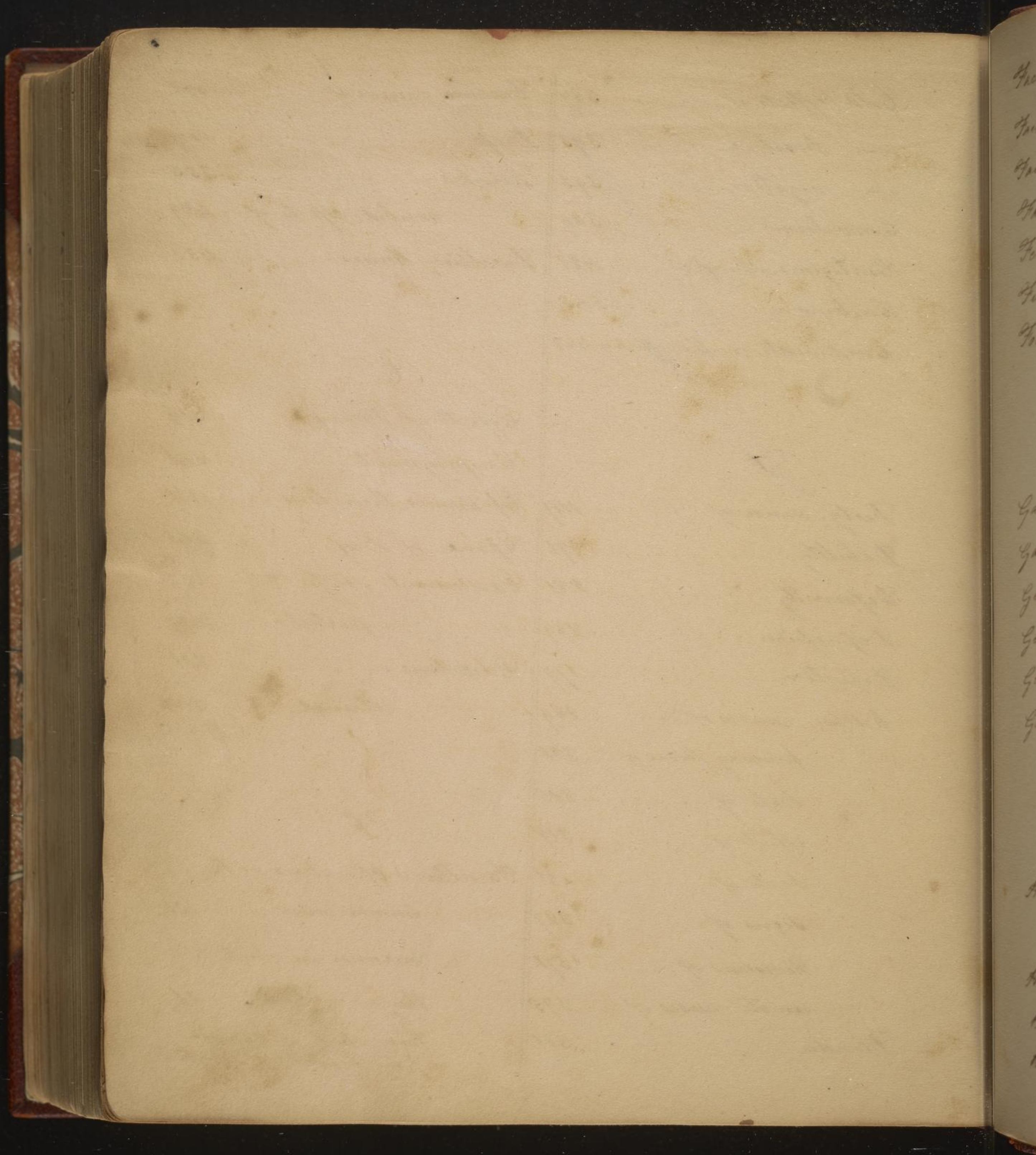
Dreams, causes of 171
 Drep 497
 Drinks 253
 morbid effects of 489
 Dwelling Houses 453

E

Effects of Disease 319
 Employments 541
 Epidemics, their laws 431
 Epence of Beef 245
 Excitement, suffocated 297
 partial 299
 Excretions 201
 retained 515

F

Faculties & Operations of the
 human mind 135
 manner in which
 they are evolved 157
 those which distinguish
 from brutes 159



Faculties, moral 157
 Faith, principle of 145
 False systems of medicine 551
 Fat 201
 Female body & mind . . . 207
 Filial diseases 551
 Food, how it should be taken 257

G

Gall Bladder 183
 Gastric juice 197
 Genius 155
 Generation 225
 Glands 197
 Governments 539

H

Habit, its effects on muscular
 action 99
 Habitual use of remedies 555
 Heart 71
 Hearing 127

Health 231
 Heat, positive effects of . . . 377
 , relative do. 381
 Heavenly Bodies, influence of 461
 Hunger 175
 Hygiene 233

I

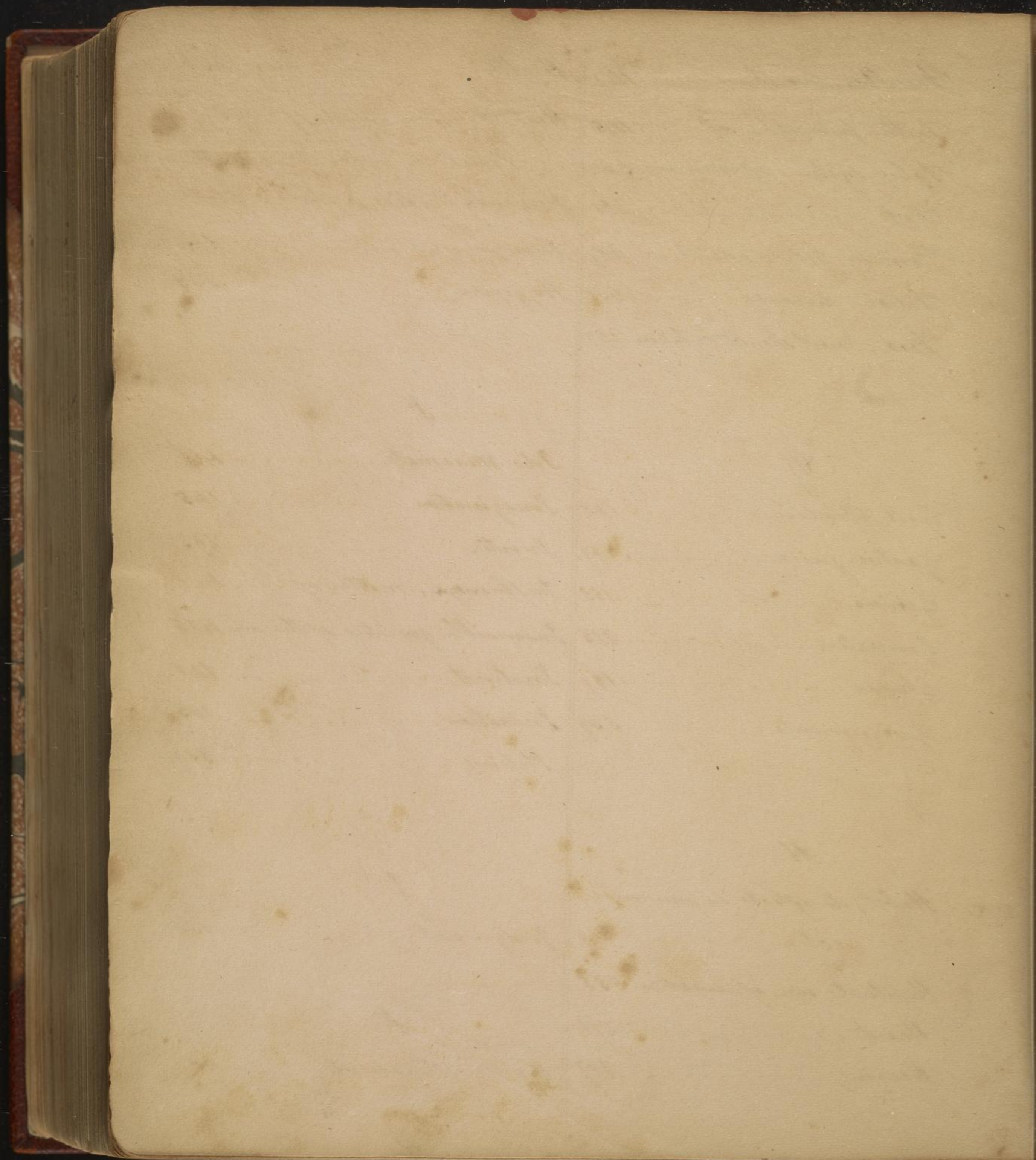
Idio Miasmata 415
 Imagination 145
 Inertia 293
 Influenza, matter of 421
 Insensible qualities of the air 405
 Instinct 141
 Intuition 155
 Itching 309

J

Judgment 153

K

Koino Miasmata 407



Laur

Lige

Lige

Live

Lige

Lige

M

M

M

M

M

M

M

M

M

M

M

M

M

L

Laws of sensation	89
of Epidemics	431
Light, its effects	459
Lightning	463
Liver	181
Lymphatics	191
Lymph	197

M

Memory	141
Menstruation	213
Menses, retention of	519
Mind, its faculties	139
operations	149
Milk	199
Moral faculties	147
Motion	95
Motion & Rest	519
Mucus	199

N

Nervous system	79
Nerves	85
Nutrition	205

O

Omentum	181
Operations of the mind	149

Q

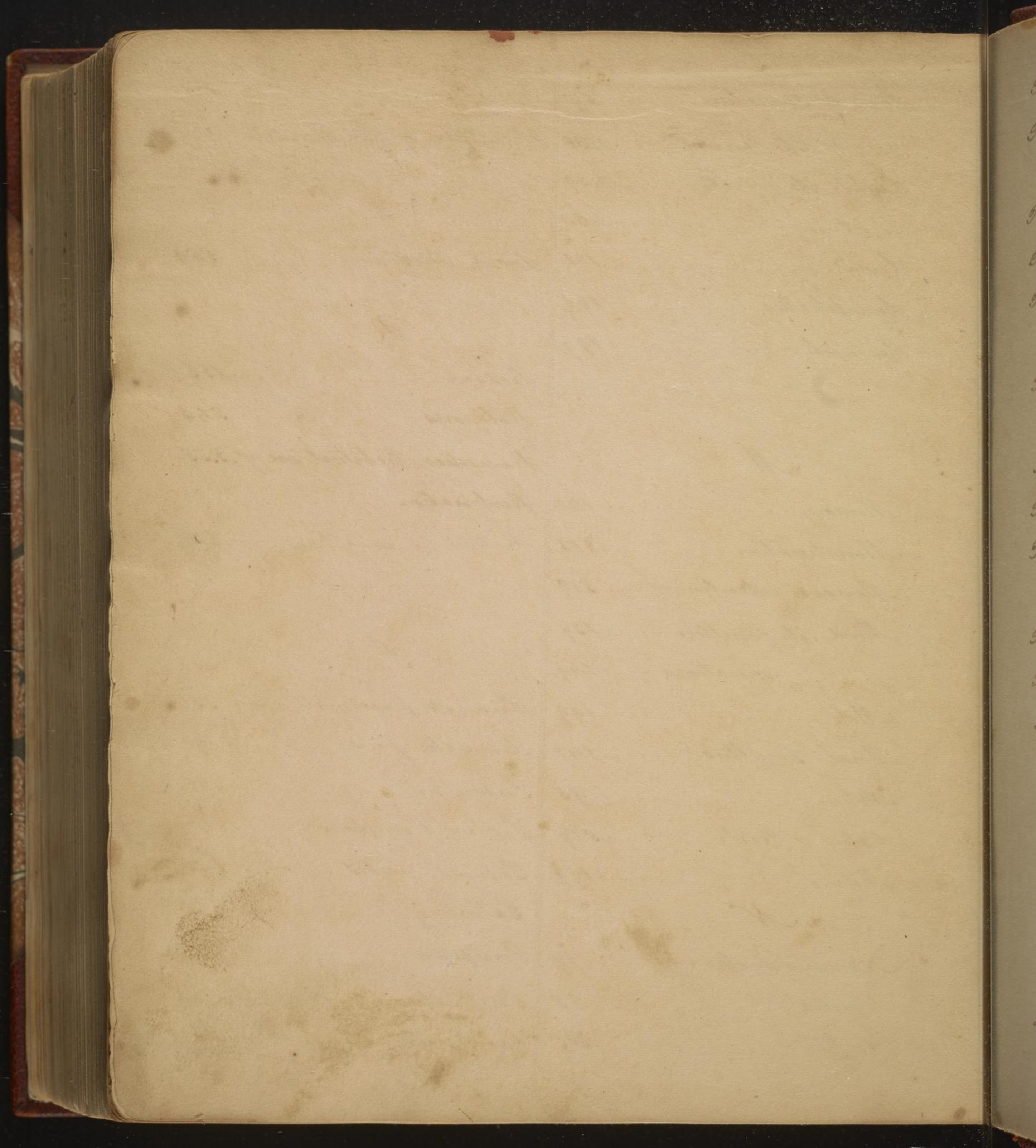
Quack Medicines	559
---------------------------	-----

R

Reason	153
Religions	543
Remedies, habitual use of	555
Respiration	57
Retained excretions	515

P

Pain, its proximate cause	331
Pancreatic juice	199
Parturition	225
Passions & emotions	147
Passions, morbid effects of	525
Pathology	265
Perception	149
Perspiration	203
Peculiarities of the female	207



Peculiarities of the male 221

Phenomena of disease applic-
ed to practice . . . 313

Phenomena of death . . . 583

Physiology . . . 43

Pleasures of the senses and
of the mind . . . 161

Poisons . . . 501

slow . . . 507

Powers which move the blood 75

Predispositions . . . 275

Praeternatural heat . . . 309

size . . . 581

Primary forms of disease 301

Principle of faith . . . 145

Pulse . . . 335

healthy . . . 337

morbid . . . 345

directions for feeling 365

S

Saliva . . . 197

Scale of disease . . . 305

Seats of disease . . . 321

Semen . . . 199

Seeing . . . 121

Secretion . . . 195

Sensation . . . 87

Senses . . . 109

Sense of Deity . . . 147

sense, common . . . 155

Sensible qualities of the air 375

Signs of disease . . . 327

Single & married life . . . 577

Situations, their influence
upon health & life . . 447

Situation, change of . . . 457

Sleep . . . 161

state of the system in . . 165

state of the body after . . 169

in excess . . . 519

Smelling . . . 117

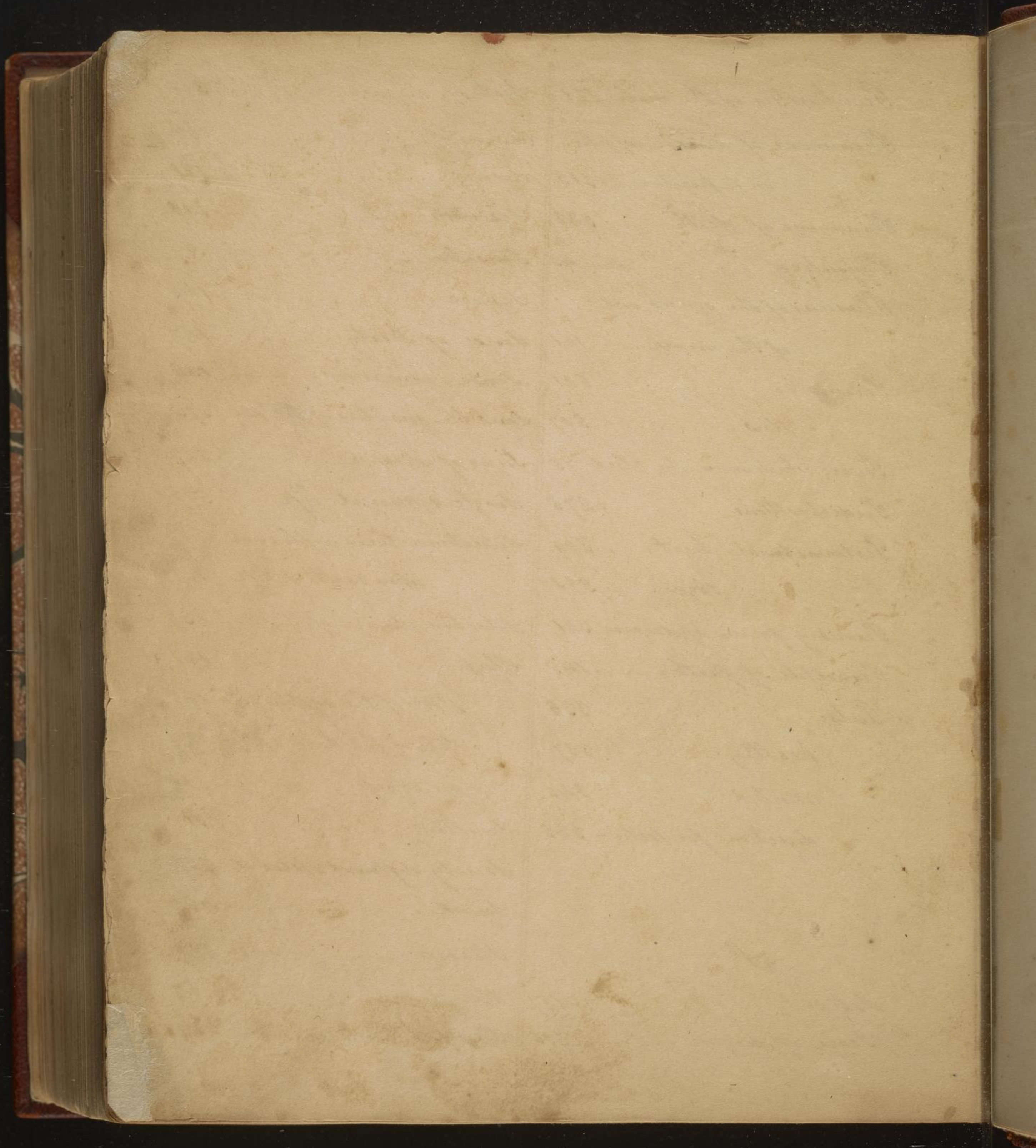
Society different states of . . 537

Sound . . . 465

Spasm . . . 309

Speech . . . 63

Specific contagions . . . 421



Spleen 183

Stomach, peculiarities of . . 177

Stupor 293

Substances, anomalous taken
into the body . . . 511

Suffocated excitement . . 309

Sympathy 103
diseases induced by 561

Synovia 199

Systems of med, false ones . 551

System, peculiar state of . . 569

T

Taste 115

mental 149

Tea & Coffee 487

Temperaments 276

Thirst 175

Thunder 463

Thymus Gland 185

Thyroid gland 185

Torpor 293

U

Understanding 145

undue exercise of 523

Unhealthy ancestors . . . 549

Unity of remote causes
of disease 295

Unity of disease 299

Urine 199

V

Veins 75

Veneral appetite 535

Voice 61

Volition 155

W

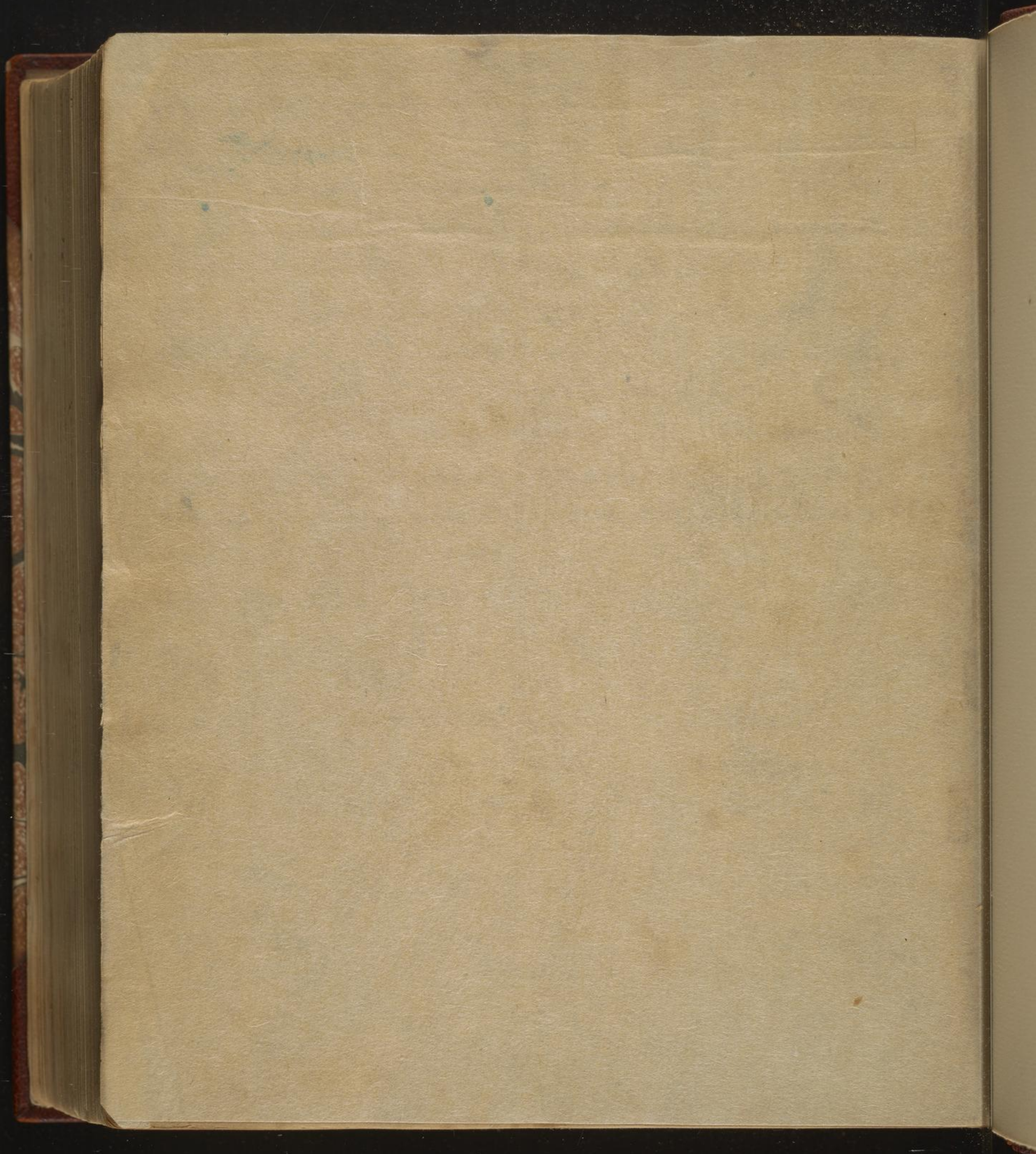
Wakefulness 519

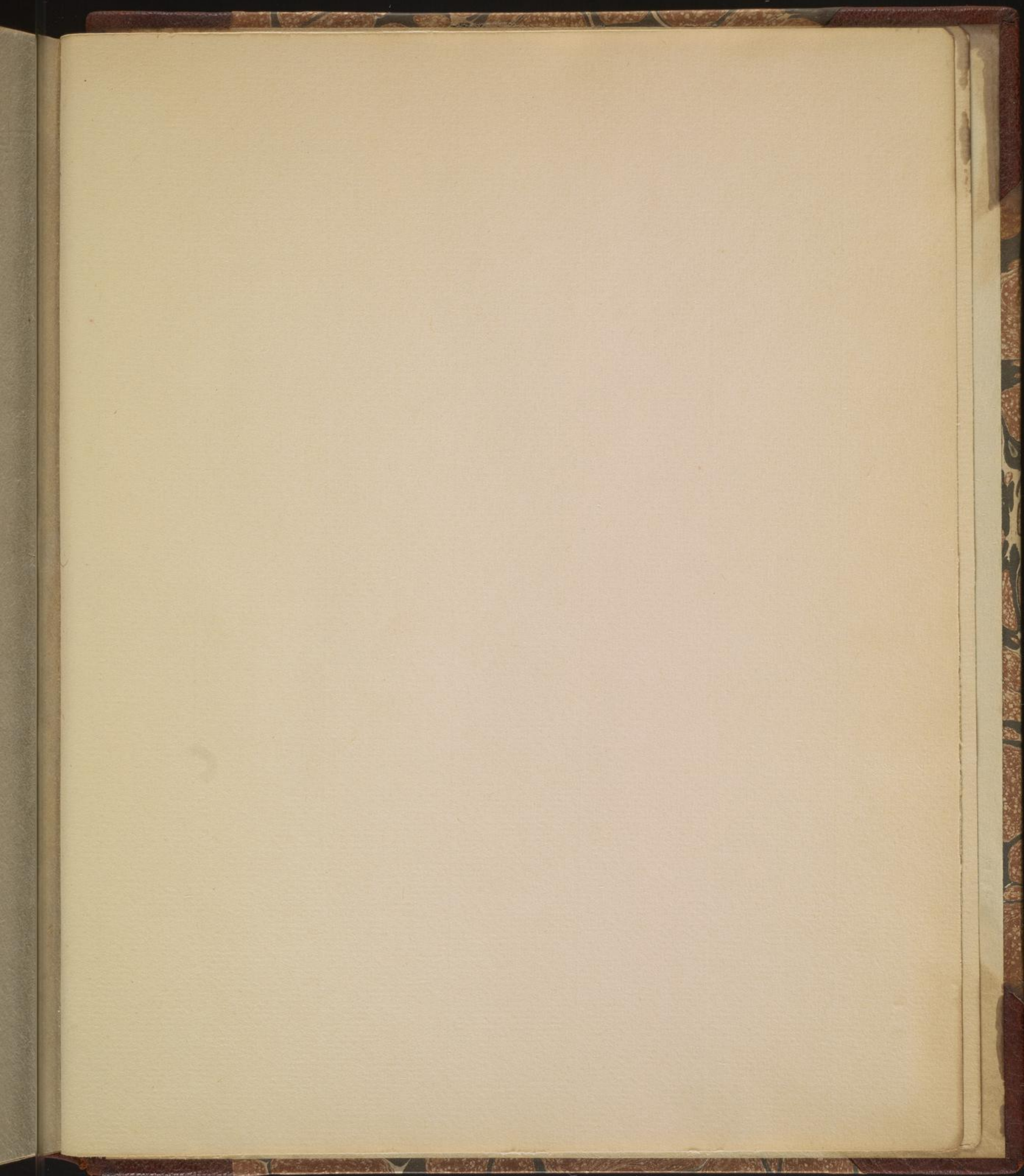
Will 145

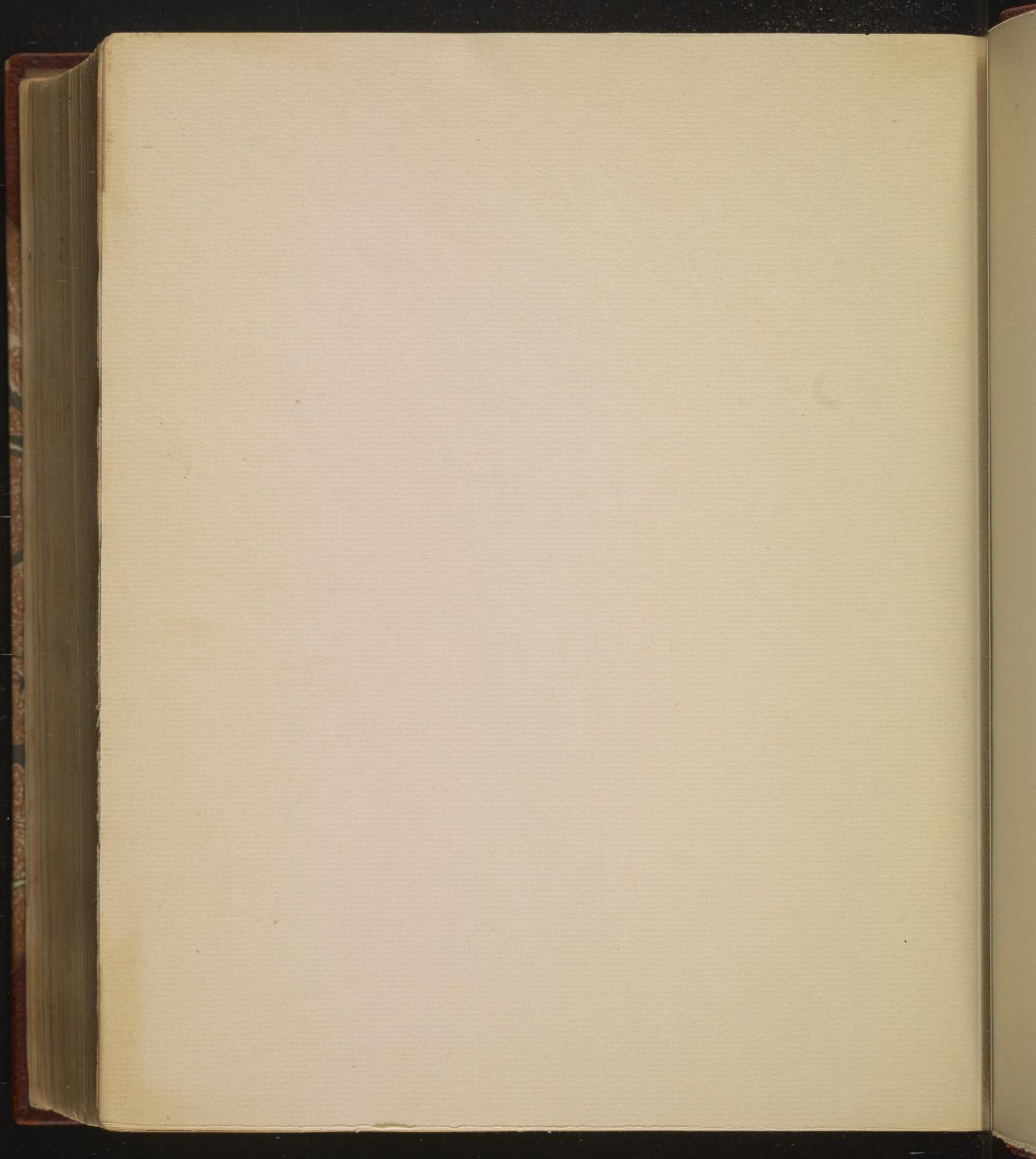
Winds, effects of 463

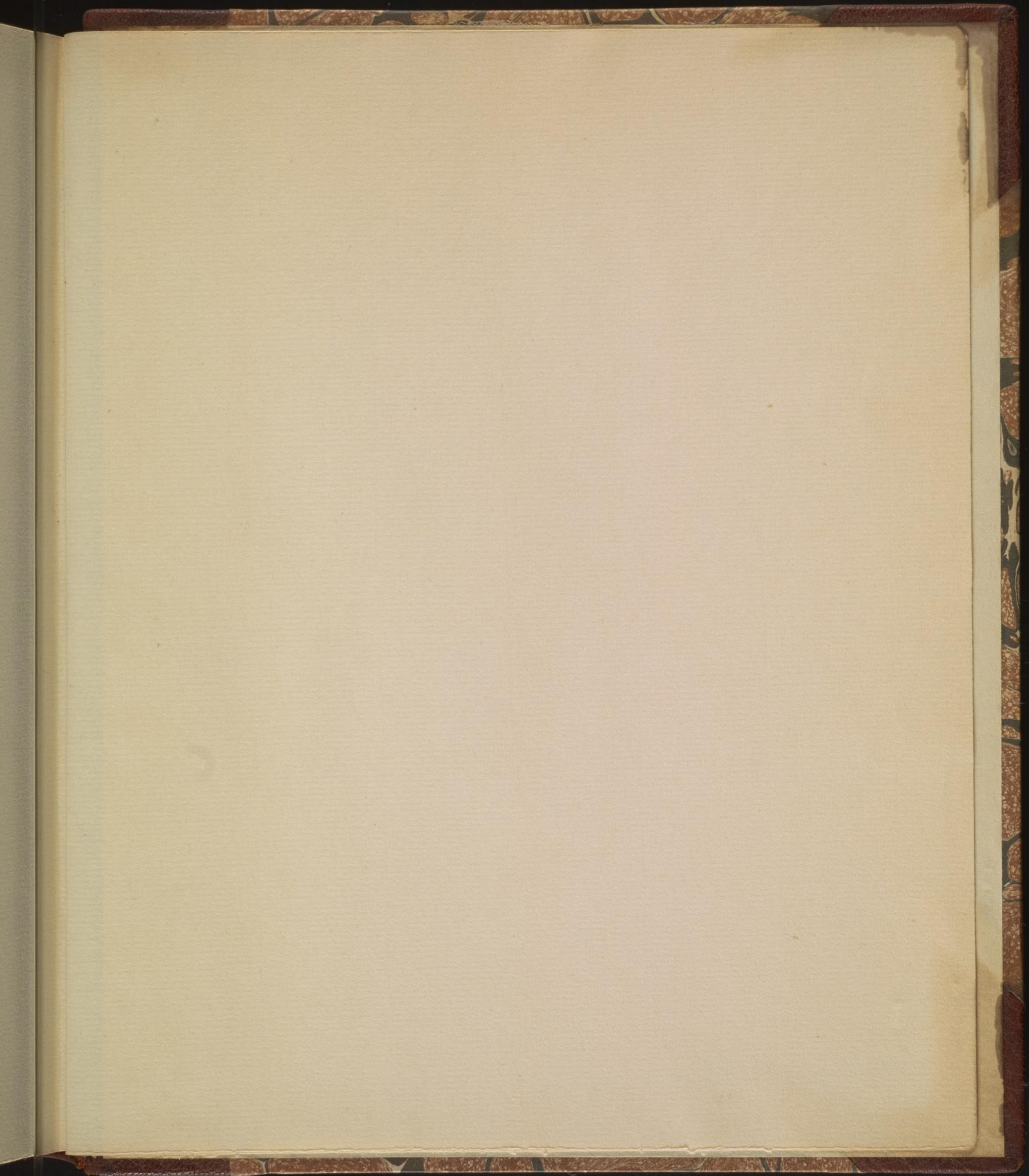
Wit 155

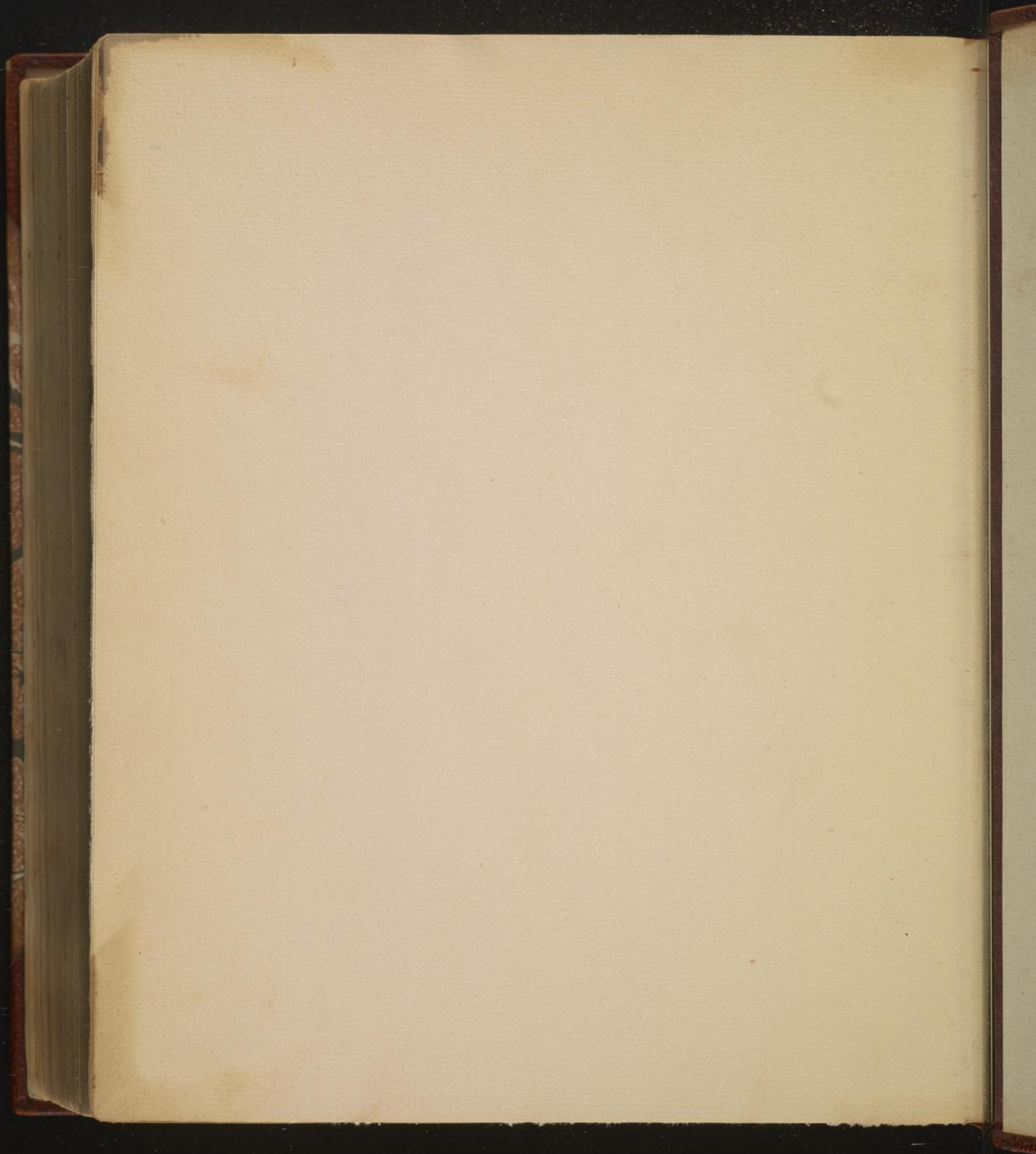
Worms 509





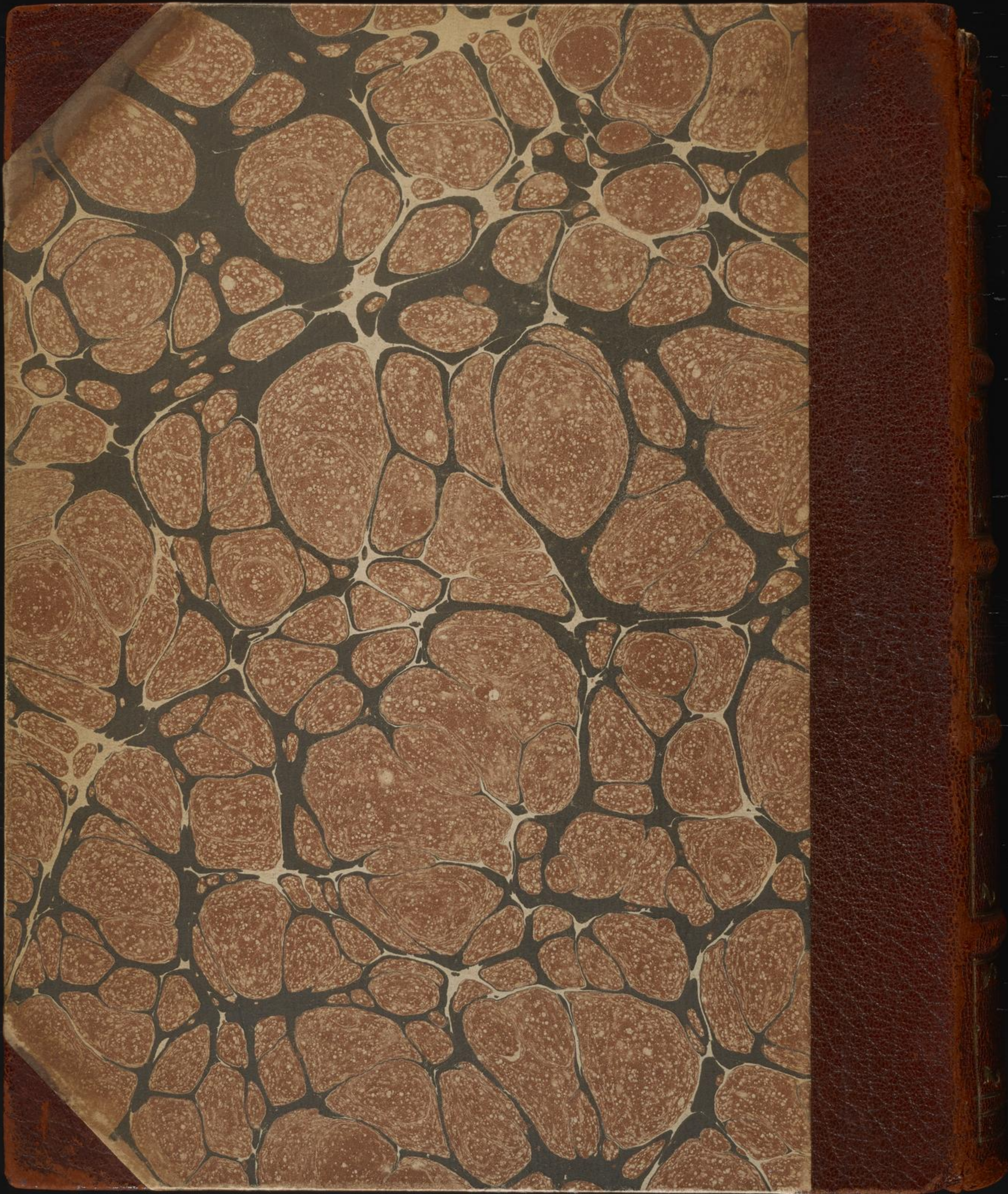






57M-21

1957 (97359) Fr. of the Library



LECTURE
NOTES

RUSH

1809-10